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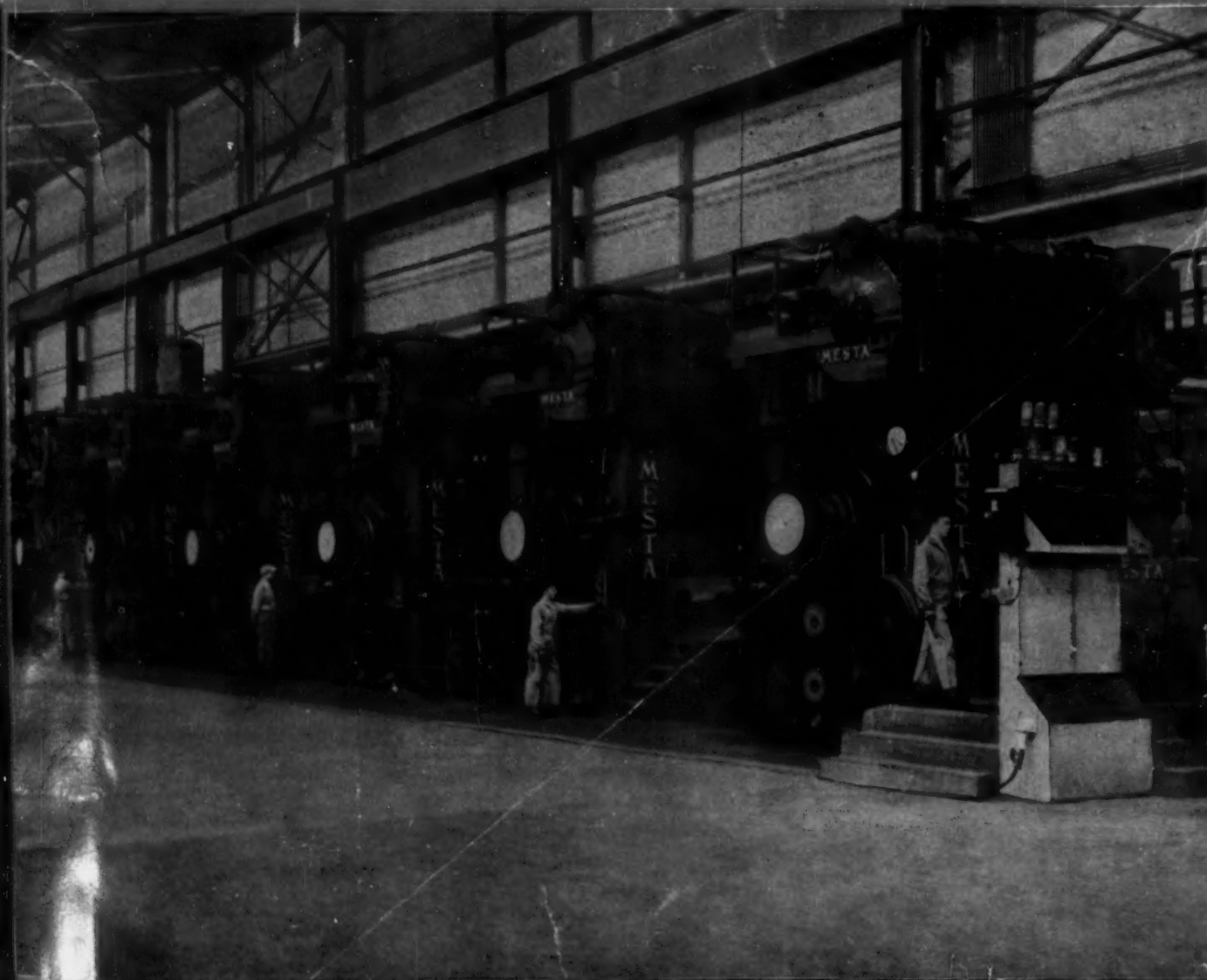
January 3, 1952

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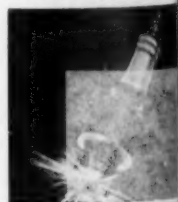


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Sparks fly better, last longer in today's spark plugs . . . thanks to Hoskins' spark plug electrode Alloys.



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January

Steel is on the march

...and here are
some Bethlehem
milestones of
'51



BRIDGING CHESAPEAKE BAY. Steelwork for the great new bridge linking Sandy Point and Kent Island, Md., is being fabricated and erected by Bethlehem. Much progress was made in 1951. The giant steel structure, 4,033 miles long, is to be part of an express highway between New York and Washington—a high-speed route that will completely bypass all cities.

FIRST ORE FROM VENEZUELA. The first cargo of Venezuelan iron ore to reach this country arrived in March from Bethlehem's mines at El Pao. When full production is reached, these deposits are scheduled to yield about 4,000,000 tons annually; if necessary, this can be increased to 5,000,000 tons. The picture shown here was taken at Puerto de Hierro, where ore from the mines is stockpiled and later placed in seagoing vessels for the trip to the States.

MAKING STEELMAKING

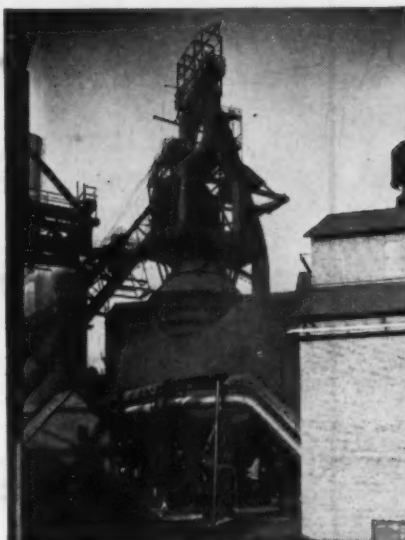
SAFER. Our plant at Bethlehem, Pa., again in first place among the country's large steel plants in the 1950-51 safety contest held by the National Safety Council. Second place went to our Johnstown, Pa., plant. Proving once more that safety is the result of careful planning, including group meetings such as the one shown here.



MORE CAPACITY. It is expected that Bethlehem's steel-producing capacity will reach 17,600,000 net tons by the end of 1952—an increase of 2,600,000 tons since January, 1950. Many facilities for other operations have also been added—as, for example, this 66-in. cold-reduction mill, which was placed in service during 1951.



FASTEST AMERICAN-BUILT LINERS. Constructed at Bethlehem's Quincy yard, the American ship *Independence* took to the seas in 1951. She now makes regular passenger runs between New York, France, and Italy. The *Independence* and a sister ship, the *Constitution* (also delivered by Bethlehem in 1951), are the fastest commercial vessels ever built in this country and have outstandingly fine appointments for passenger comfort. If need arises, both can be converted to transports carrying 5,000 troops each.



WORLD'S PIG-IRON RECORD.

In October a new world's record for pig-iron production was set by blast furnace "H" at Bethlehem's Sparrows Point plant. The figure: 56,010 tons—which exceeded the amount ever before produced in one month by a single furnace. This was the fourth time the same unit had set a production record.



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Resolutions and Predictions

THIS year more than ever we should turn the searchlight on our national picture. We should also put the light of cold logic on some of our own thinking.

If we do this we can make some predictions and, at the same time, consider some strong resolutions—resolutions we ought to do something about before it is too late.

The way things are going in Washington it is certain that we need more leadership, more moral fibre, a little more toughness and less censorship of information that belongs to the public.

If we continue to accept mediocrity and if we continue to put up with ratty gnawing at the inalienable rights of man guaranteed in the Constitution we shall lose that for which we fight.

We have no plans that are definite, that are tough and that show we are a race of people who do not traffic in fear. Yet our leaders seem impelled to do everything out of fear instead of confidence.

Part of this is our own fault. If we don't believe enough in the things we prate about, then we have no right to them. If we take things as a matter of course and are cynically casual about mediocrity and lack of integrity in high places, then that is what we deserve.

We can't make many changes via the soap box. The public is fed up with speeches, harangue and double talk. It is in no mood to hear one thing and see another. The best resolution is for us to act as we believe—a good example is always the best argument.

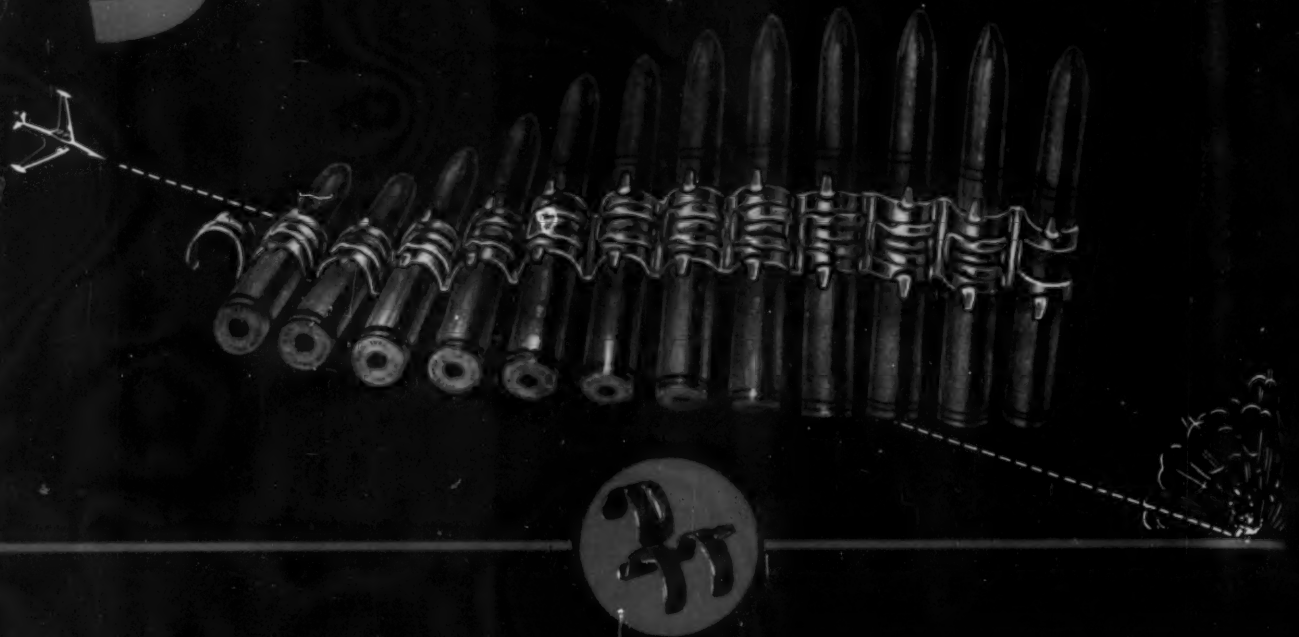
If you believe in freedom, if you believe in a square shake for everyone, if you believe we have many well-meaning government people who are unable to meet the tough and brain tiring requirements expected of them today, say so but do something about it. A holier than thou attitude won't get you anywhere.

We are up against foes who bar no holds. Their slogan is the human being be damned—the state is supreme. Americans choose to believe that the individual is supreme and the state subordinate to it. Let's keep it that way.

Tom Campbell

Editor

Shell Game with a New Twist...



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coils, is being used regularly on this job. For this application a heat treatable spring steel with exceptionally good forming qualities is used. The use of strip aids high speed production. Big Sharon coils reduce down time too.

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Sharon, Pennsylvania

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SHARONSTEEL

THE IRON AGE Newsfront

► When the figures are all added up it will be found that steel production for 1951 amounted to 105.2 million net tons. This year the industry should be able to turn out 112.5 million tons, if needed. By 1953 as much as 117 to 118 million tons could be produced. But labor trouble or scrap shortages could upset these potentials.

► On steelmaking scrap, the wolf is here. The shortage is neither talk nor hysteria. Openhearth and electric furnaces will be shut down and real production will be lost if scrap collections are not boosted soon.

► Like steel, the one certain thing about automobile production in 1952 is that prices will be higher. Strong pressure is being applied in Washington to stave off prospective cutbacks. At the moment, it appears that either side can win.

► Home appliance manufacturers will know more about their inventory position when holiday sales are all tabulated. Unless unexpectedly high sales are reported, federal production limitations won't cause any serious shortages before the end of the first quarter. First to show the effects will be automatic washers and dryers. Refrigerator stocks will be adequate at least through the first half of the year.

► Petroleum products will remain in relatively good supply during the coming year despite trouble in Iran. But the industry is still pressing for more steel, needs it particularly to build crude oil lines which are now operating at capacity.

► In tool steels there is a strong trend toward molybdenum high steel because of the tungsten shortage, particularly in the big automobile plants. Use of carbide and high speed steel inserts in dies is another technique that is making good headway.

In industries using strong chemicals the new chrome carbides look good. Tests show that they are far more resistant—sometimes thousands of times better—than most materials now being used in these applications.

► Hot extrusion of steel will be a big and important process in the U. S. this year. First U. S. hot extrusion by the French (Sejournet) process has already been tested by one company which expects to be in full production soon.

► Defense planners who had expected the aluminum supply picture to turn bright toward the end of 1952 now take a dim view of supply prospects throughout the year. Their revised outlook doesn't stem from disappointing production or expansion news: Reports are the military has told them to expect much greater demand for planes. So talk is of even deeper cuts for civilians.

► The machine tool industry doubled its rate of shipments in 1951, expects to do it again in 1952. Shipments this year will be between \$1 billion and \$1.5 billion, depending primarily on how much subcontracting the industry can do and how much additional skilled labor it can find this year.

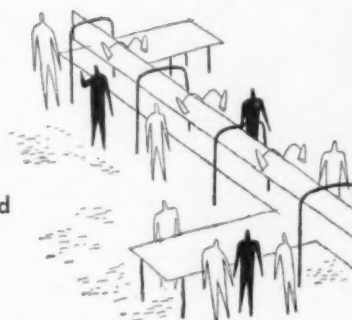
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STAMPERS: Will Get Acid Test in 1952

Good business depends on more war work, success of appliance makers in redesigning, substituting . . . War contracts don't make up for losses caused by cutbacks —By E. C. Beaudet.

The stamping industry will get its acid test in 1952. Whether it can reverse a further drop in business depends on several factors: an increase in defense business; the extent to which the government will restrict consumer durable goods production; and the strength of the consumer durables market if restrictions are reduced.

Without a substantial increase in war contracts, this year will be a trying one. Defense work presently accounts for from 15 to 20 pct of stamping business. This has not compensated for cutbacks in civilian production.

Off 50 Pct—In Detroit, automobile stampings for original equipment are off as much as 50 pct. A compensating increase in stampings for replacement parts has put the overall drop to about 10 pct in the last several months. Stampers having a diversified business are better off, with orders falling at a slower rate.

Defense business is trickling in slowly to Detroit stampers. Competition for defense and civilian orders is keen as stampers try to maintain volume at the expense of profits. Some firms report having to compete with outside stampers who are invading Detroit for government business.

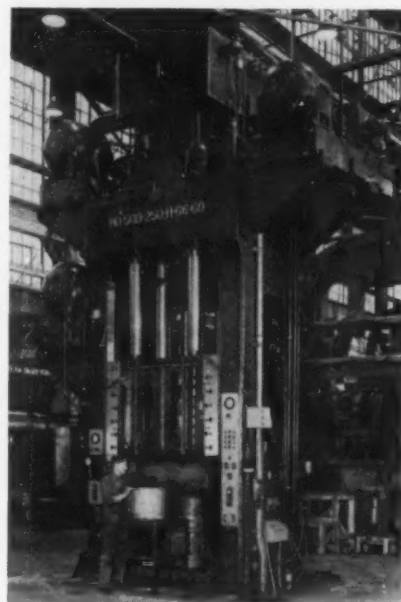
Some stamping work has been awarded on bids by automobile manufacturers. These include items such as rockets, bazookas, gun stampings.

West Coast shops equipped with small presses are in a dog-eat-dog battle for orders. Prices, like everywhere else, are extremely competitive. Shops with heavier

equipment are in a sounder position because munitions orders require larger presses.

In Chicago the outlook is more mixed with a trend toward optimism being noted. Some firms expect their best quarter since the first quarter of 1951, but these are in the minority. A slight upswing in orders from radio and television manufacturers during the last quarter of 1951 is part of the basis for brighter hopes.

Also, some stalled government contracts have opened up for the first quarter of 1952 and sometimes carry through to June. These include stampings for military truck parts, fuel tanks, ammunition cases, condenser cans



VERSATILITY: Stampers with heavier facilities for deep-drawing can better withstand business slumps caused by curtailed civilian production. Here deep-drawn washer tubs are made at City Auto Stamping Co., Toledo, on an E. W. Bliss Co. hydraulic press.

and a variety of stampings for communications equipment and electrical controls. Defense volume in Chicago stamping plants ranges from 12 to 50 pct of production.

Hardest hit are those firms unable to secure government contracts and which still produce toys, steel cabinets of various kinds and stampings for large appliance and automotive uses.

The overall stamping business will be affected greatly by the ability of consumer durable goods makers to get around metals restrictions by redesign and substitutions for critical metals. Their volume is expected to be higher than government restrictions indicate. For example, General Electric Co. plans to hit 75 pct of 1951 production in '52.

Top Quota—Appliance industry forecasters claim their market will improve during 1952. They say shortages of high demand items such as automatic washers and dryers will crop up toward the beginning of the second quarter under present metal allotments. Refrigerators, the easiest of all, will not feel the pinch until mid-year at the earliest.

With their volume of business down, steel is not the headache it once was for metal stampers. Most firms report less difficulty buying steel, particularly from warehouses, in the last 3 months. Mill steel is much tighter than warehouse but cold-rolled sheets, coated sheets and other specialties are obtained with less effort. Premium-priced steel once the bane of metal stampers is way off, with cold-rolled sheets being offered to some for 7¢ per lb as against 17¢ several months ago.

STEEL: 2.5 Million Tons Nearer Goal

Iron Age survey places 1.5 million tons of increase . . . Open-hearths gain 1 million tons while electric furnaces add 500,000 . . . List some expansion projects—By J. B. Delaney.

The great steel expansion project last year spurred 2.5 million tons toward its goal of 120 million tons in 1953. The increase in the steel industry's ingot capacity brought productive potential to 107 million tons at the end of 1951. Response to an IRON AGE survey placed 1.5 million tons of this boost among several producers. The survey showed that new openhearth capacity accounted for almost 1 million tons while electric furnaces gained over 500,000 tons.

Defense mobilizers say that certificates of necessity issued indicate that practical capacity by the end of 1953 or early 1954 will be 120 million or more. This will be an increase of around 20 million tons since the end of 1950.

Big Contributor—Of the companies included in the survey, Jones & Laughlin Steel Corp. brought in the greatest tonnage during 1951—approximately 300,000 tons of new openhearth capacity, at its Pittsburgh Works.

Through furnace enlargements, Republic Steel Corp. boosted openhearth potential by 216,000 tons at scattered locations.

Kaiser Steel Corp. openhearth capacity went up 180,000 tons at Fontana; Pacific States Steel Corp. 75,000 tons at Niles, Calif.; the Midvale Co., 41,580 tons at Nicetown, Pa.; Ford Motor Co., 11,000 tons at The Rouge; John A. Roebling's Sons Co. 20,000 tons at Roebling, N. J.; Industrial Forge Steel, Inc., 52,000 tons at Canton, Ohio; Keystone Steel & Wire Co., 100,000 tons at Peoria.

Allegheny Ludlum Steel Corp. increased electric furnace capacity by 72,000 tons at Watervliet, N. Y.; McLouth Steel Corp., 140,000 tons at Trenton, Mich.; Babcock & Wilcox Co., 90,000 tons at

Beaver Falls, Pa.; Armco Steel Corp., 150,000 tons at Houston; Rotary Electric Steel Corp., 54,000 tons at Detroit. Latrobe Electric Steel Co. also increased its capacity with installation of a new 6-ton furnace.

Projects for '53—Several companies reported expansion projects underway with the expectation that new capacity would be brought in early in 1953. Among these are Detroit Steel with openhearths under construction; Pittsburgh Steel Co., openhearth furnace enlargements; Inland Steel Co., four 250-ton furnaces at Indiana Harbor; Ingersoll Steel Div., Borg-Warner Corp., two 12-ton electric furnaces.

Increases in blast furnace ca-

Abundant Steel for Defense

Annual steel capacity at the start of 1952 will be about 107 million net tons, Walter S. Tower, president, American Iron & Steel Institute, estimated in his annual statement.

In the first half of 1952 steel companies' expansion and improvement programs are expected to add another 6.5 million tons. The expansion timetable is slated to bring in another 4 million tons in the last half of the year, and 2 million tons more in 1953, he reported. Sometime in 1953 he expects the industry's total annual capacity to reach 120 million tons.

He estimated 1951 production at about 105 million tons.

"There can be no question about enough steel to meet defense needs as now forecast, as well as other uses of steel, if steel companies are permitted to do the things of which they are capable," he asserted.

capacity were reported by the Wisconsin Steel Div. of International Harvester Co., 34,675 tons; Central Iron & Steel Co., 200,000 tons; Colorado Fuel & Iron Corp., 45,000 tons; U. S. Steel, 112,000 tons.

Shipments Up:

U. S. Steel finished product shipments climb 7.1 pct over '50 mark.

U. S. Steel's shipments in 1951 will total about 24,250,000 net tons of finished products, Irving S. Olds estimated in his year-end statement. This is 7.1 pct more than the company shipped in 1950, best previous year. For the whole year the company operated at about 101.5 pct of rated capacity, close to 105 pct in recent weeks.

U. S. Steel entered a post-Korean expansion campaign designed to add 4.3 million net tons annually to its steel capacity. Of this, 1.8 million tons were added by the end of 1950, representing additions that could be made promptly at existing plants. The remaining 2.5 million tons will become available in 1952, he reported.

Mr. Olds disclosed the following progress report on U. S. Steel's expansion program:

Fairless Works, Morrisville, Pa. This entirely new project is 35 pct physically completed as a whole. The first battery of coke ovens and one blast furnace should be ready for operation in the second quarter of 1952. Initial production of steel ingots is expected to take place in that quarter, with the full capacity of 1,800,000 tons of ingots attained in the third quarter of 1952.

Pittsburg Plant, Pittsburg, Calif. The additions to the facilities at this plant are 80 pct physically completed. Enlargement of the cold reduction mill and electrolytic tinning line is expected to be in operation in the first quarter of 1952; and the continuous sheet galvanizing line sometime in the second quarter of 1952.

Geneva Plant, Geneva, Utah. An additional openhearth furnace of

160,000 tons annual capacity should be ready for operation in the first quarter of 1952. It is 60 pct physically completed. New facilities for production of hot-rolled sheets are now 80 pct physically completed and should be ready for operation in second quarter of 1952.

Fairfield Works, Fairfield, Ala. New facilities at this plant are 30 pct physically completed. Additional steel producing facilities with a capacity of 500,000 tons of ingots annually are expected to be ready for operation in the first quarter of 1953, and the new sheet facilities by third quarter '53.

Great Lakes Fleet—A new self-unloading limestone carrier for Bradley Transportation has recently been launched and should be completed for operation at the opening of the 1952 shipping season. One new iron ore carrier for Pittsburgh Steamship, largest vessel in our fleet, was launched last November; this and a second carrier of similar size should be ready by the second quarter of 1952 to carry more raw materials needed by the expanding steel industry.

Orinoco Mining Co.—On Thanksgiving Day, this subsidiary signed a contract with the Venezuelan Government for the dredging and maintenance of a channel in the Macareo and Orinoco Rivers in Venezuela. This will permit ocean-going ore carriers to take iron ore from the proposed loading dock on the Orinoco River at Puerto Ordaz, a new river port 90 miles by rail from the Cerro Bolivar ore bodies, for water transportation directly to the U. S. ports. First deliveries of Venezuelan ore from Cerro Bolivar to the U. S. are now scheduled for early 1954.

These and the experimental plants in Minnesota for the production of taconite concentrates are the major items in the current widespread program of expansion, improvements and technological developments.

ROADS: Ask Larger Steel Quotas

Highway users, government agencies urge controls officials to allow more roadbuilding . . . Want 2 pct of steel production . . . Stress essential nature of traffic—By A. K. Rannels.

The tug-of-war goes on over allocations of steel and other controlled materials for highways. A new battle is developing.

Support of groups representing highway users from passenger car operators to commercial trucking fleets who are hauling defense cargoes is being thrown behind Defense Transportation Administration and Bureau of Public Roads pleas for more materials.

More specifically, they are uniting in a demand that (1) highways be given a higher rating on the essential list and that (2) up to 2 pct of steel production be made available for road programs.

Must Wait—But controls officials are standing by their guns. They insist that most highway programs must be shunted aside until defense production is rolling in high gear. They cannot see their way clear for increased al-

locations before the third or the last quarter.

Highway officials, private and commercial included, generally look upon this as a penny-wise, pound-foolish viewpoint.

They point out that surveys indicate that 68 pct of all passenger car traffic is of an essential nature, that 25 pct of all highway freight is government cargo, and that the overall highway freight volume is expected to increase by another 15 pct by spring.

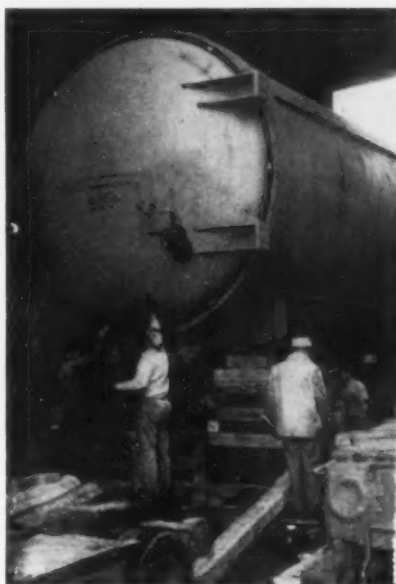
They point out further that these surveys indicate passenger cars must be produced at a rate of at least 4,000,000 a year to avoid a transportation breakdown and that trucks must be built at a 1,000,000 a year rate to take care of freighting needs.

Can't Move It—They feel that this all adds up to a situation where defense production will be pouring out goods at a peak rate but highway facilities will be inadequate to handle it. More than 680 highway projects are now being held up, compared with a few more than 300 only three months ago.

First quarter steel allocations are at about the 200,000 tons-a-quarter rate. Officials say that, if there is no serious work stoppage and if new steel production comes in as planned, it may be possible to raise this rate to around 265,000 tons by perhaps the third quarter of 1952.

Not Enough—This still would be only about half what highway agencies feel is needed.

Control officials lost some ground in their first skirmish. First quarter allocations were cut back to about 1949 levels. But pressure was brought to bear and most of the reduction was restored.



VULCANIZER: To be used for vulcanizing large-size fuel cells for aircraft, a 40-ton steel cylinder is being moved from flat car into the B. F. Goodrich plant in Akron.

ALUMINUM: Output Keeps Growing

Expansion highlighted 1951 . . . New Year will see reaching of million-ton mark . . . Demand will still exceed supply . . . More firms may enter . . . Power still tough — By R. L. Hatschek.

Aluminum will have its first million-ton year in 1952. Supply will come closer to demand but will still fall slightly short.

The industry hit its highest peak so far in 1943 when production was 920,179 tons; 1951 final figures will total between 830,000 and 840,000 tons but this won't be a peak on the output curve—it will only be one point on the steep climb of the light metal's acceptance by industry and public.

The year just ended was particularly notable for the expansions within the aluminum producing industry. Potlines were added to existing facilities and construction was started on new plants. Metal has already been delivered from some of these.

Shortage Year—Despite relatively high production in 1951, consumers suffered severe shortages. Supply was placed in the government's "most critical" category. Direct military demands of the aircraft program chewed up much of the year's production and proposals for a 143-wing Air Force promised to take an even bigger bite in the New Year.

Manufacturers of civilian goods were severely restricted in their aluminum supplies but the outlook was so bright in comparison with other metals that much experimenting was done in attempts to substitute aluminum for other metals. This was particularly true in the automotive and electrical industries and, in some cases where materials were switched, the companies plan to stay with aluminum.

Competition—Cries of "monopoly" and "tri-opoly" were heard frequently throughout the year and government efforts were directed at enticing new firms into

primary production. The government wanted small outfits which would produce and sell only pigs and ingots. But aluminum production is a costly process, particularly when the plants must be built at today's prices. There isn't sufficient inducement for small firms to become primary producers.

One firm did agree to enter the industry—Anaconda Copper Mining Co. in conjunction with Harvey Machine Co.—over the "monopoly" objections of Justice and Interior Depts. Some new firms may yet be attracted by more government aid.

Defense production and mobilization agencies, temporarily in power, over-ruled and paved the way for the new producer to build a 72,000-ton smelter in Kalispell, Mont. The stand of these agencies was that aluminum was needed as soon as possible and that a big company with more money and metallurgical experience could do the job quicker and at less expense to the government. This was

also the attitude they took in allotting huge expansions to the existing "big three" in the absence of new, small producers.

The Cheaper, the Better—The industry's own viewpoint was that aluminum would benefit most from the lowest possible prices and, like steel, complete integration was the best method for bringing prices to a really competitive level. On a cubic-foot basis aluminum is already second cheapest of the nonferrous metals (magnesium is cheapest) but the price is still not low enough to suit the producers.

Capacity in 1953 will be about 1.5 million tons annually but the industry expects new uses of the metal, particularly in the building and transportation industries, to provide huge markets even without defense production. The "big three" have waged an aggressive and determined campaign for new markets and they will be rewarded—if they come through with enough metal for the guns and butter economy.

Power Problem—The bigger aluminum gets, the tougher it is to find enough cheap power (almost 10 kwhr are needed to reduce a pound of metal). Dry weather cut aluminum output in September by reducing Northwest power generation. Natural gas, though more expensive, is being widely adopted for new smelters in the Southwest; lignite is to be used in one development; and aluminum may eventually be forced to use coal as another power source. Development of power facilities in the Northwest can relieve the power problem but Interior Dept. doesn't appear desirous of letting any more long-term contracts to existing producers.

All in all, 1952 definitely promises to be the biggest year yet for the aluminum industry. But demand piled on demand will not permit production efforts to be relaxed. Records will fall right and left—but the 1952 records set by aluminum probably won't stand for more than a year.



"We've got to find a substitute for our substitute. It's been put on the critical list because too many manufacturers took to using it as a substitute."

STEEL: Threat of Strike Lifts

USW wage policy committee directs workers to stay on the job after contract expiration . . . Final decision to be made at meeting . . . Later crisis possible—By J. B. Delaney.

The threat of an immediate industry-wide steel strike appears to have been lifted. The wage policy committee of the CIO United Steelworkers of America last week "authorized and directed" steel workers to remain on the job after expiration of contracts Dec. 31.

But final decision in the matter was left to a special international convention of the union scheduled to convene in Atlantic City today.

While the odds were in favor of the convention voting to continue at work during hearings before the Wage Stabilization Board, there was no absolute guarantee of this. Philip Murray, union president, said the voting could go either way.

Also, some observers saw the possibility of scattered wildcat strikes by some more restless union locals as a demonstration of strength. However, Murray said he was confident the workers would stay on the job pending a recommendation by WSB.

Invitation to Speak—The steelworkers' union has invited Benjamin F. Fairless, president of U. S. Steel Corp., to attend the Atlantic City convention and address the meeting.

Assuming that an immediate strike does not materialize, there still remains the probability of a crisis later on when WSB returns its recommendations.

Murray has been convinced that President Truman would use the Taft-Hartley act to prevent a strike. He realizes also that this would embarrass the President, to whom the act is no less distasteful than it is to Mr. Murray. He evidently feels, too, there is a good chance of a favorable recommendation from the Wage Stabilization Board. He might not get

everything he wants, but the recommendation might be enough for him to stomach, however reluctantly.

Should this occur, the industry might find itself behind the familiar eight ball—unless the Office of Price Stabilization comes through with permission for a price increase acceptable to the producers. If not, the industry would balk and Murray would be in position to point the finger as he calls a strike.

Not Just Money—It depends, too, on the board's feelings with respect to the union's non-economic demands—the union shop and the guaranteed wage. There is plenty of industry opposition to both.

Developments have followed a familiar pattern. The situation is a lot like that of 1949 when the union finally shut down the industry for more than a month to win pensions for its members. At that



"NPA sent her. They think she'll cut absenteeism."

time the union postponed a strike for 60 days while a three-man panel considered the issues. Industry refused to accept the recommendations and the union struck Oct. 1.

Meanwhile, Sharon Steel Corp. in its reply to the request of Nathan P. Feinsinger, Chairman of WSB, to keep its plants operating during the hearings, indicated its willingness to follow any "national pattern" that might be set for the steel industry and thus saw no reason for a work stoppage in its plants. Sharon was the first basic steel producer to publicly take this position.

Deplore WSB Regulations

Fixed national patterns for health and welfare plans eventually will disillusion American workers and "stabilization will suffer a serious blow" as a result of wage stabilization board's new General Wage Reg. 19 and Resolution 78.

Five industry members of WSB brought these charges, and others, recently as Economic Stabilizer Roger L. Putnam approved the health and welfare policies contained in the orders. The sixth industry member, a new addition to the board, was not sounded out on his views.

Of the two targets criticized by industry members, Reg. 19 lists and defines such benefits as temporary disability, in-hospital medical expense, and death benefits on a group-term basis. Order also outlines procedures under which benefits can be put into effect.

Resolution 78 includes a set of standards, called "Review Criteria," to guide employers—or employers and unions, as the case may be—in establishing or amending health and welfare plans.

Westinghouse, IUE Agree on Pay

Westinghouse Electric Corp. and the International Union of Electrical Radio and Machine Workers (CIO) have reached an agreement on wage increases ranging from 5 cents to 10 cents an hour, subject to approval of WSB.

IRON ORE: Fleets Set 1952 Goal

Fleet owners drive shipyards . . . Prepare to haul new record of 96 million tons of ore . . . All-rail shipment here to stay . . . New ships to join Great Lakes fleet — By W. W. Taylor.

Although the 1951 navigation season on the Great Lakes has been closed for only a few weeks, preparations for another record-breaking season this year are already under way. Fleet operators will be pushing shipyards to high production so that the fleets will be ready in time to haul a goal of 96 million tons of iron ore in 1952.

Final tabulations of the Lake Superior Iron Ore Assn. put lake shipments at 89,092,012 gross tons (THE IRON AGE, Oct. 4, 1951, p. 177). In addition, 7,900,000 gross tons were shipped from the dis-

New Ships—In 1952, 13 additional carriers will join the ore-carrying fleet. Of these, three will be converted victory ships and ten will be new ships from keel up. While they will not all be ready at the season's opening they will add a potential annual carrying capacity of 9 million tons to the present group. Last year one new and three converted ships were added.

Steel industry expansion will demand greater tonnages of ore than have ever been considered possible to move from the Lake



LAST TRIP: Pittsburgh Steamship Co.'s Thomas F. Lynch is unloaded at Conneaut, Ohio, at close of Great Lakes iron ore hauling season.

trict by rail, making a total of 96,992,012 gross tons.

Shipping by Rail — All-rail movement of ore had never before contributed more than 1 to 2 million tons a year. But in 1950 fears of impending shortages at one or two mills necessitated rail shipments into late winter. Supplemental all-rail deliveries have now become standard procedure in iron ore movements.

By comparison, the previous all-time record year was in 1942 when 93,486,849 tons were brought down to furnaces. This included an all-rail movement of 1,410,068 tons. Statistics further indicated that this year's shipments showed an increase of 15,814,805 gross tons over 1950 (including rail).

Superior District. It is estimated that by 1953 the tonnage of lake-shipped ore must reach at least 103 million.

In 1951 American and Canadian blast furnaces ate up 81,730,283 tons of ore as compared with 76,247,540 tons in '51. On Dec. 1, 1951, United States steel plants had stockpiled 40,243,550 tons of ore against 35,414,152 tons a year ago.

New or converted vessels will contribute greatly to this shipment but there are factors which could jeopardize these ambitious plans. One is a shortage of labor at Great Lakes shipyards. Shipbuilding and repair yards always have had unstable labor conditions and an exceptionally high turnover. Priorities will be given by state employment services, and

defense mobilization agencies are currently acting to assist in overcoming a manpower shortage.

Charge for Overtime—Office of Price Stabilization is also considering possibilities of applying escalator clauses to shipbuilders' contracts so they may charge for overtime work. Another factor is Sen. Bricker's proposal that Lake traffic become subject to I.C.C. regulations.

Such improvements as are being considered for modernized unloading facilities and navigation on the Cuyahoga River, in Cleveland, would help considerably. Serving three of the top four steelmakers, adequate flow of ore here is of great importance.

With added ore-carrying capacity and all other improvements, there is little doubt that goals now being established for the Great Lakes fleet in 1952 and 1953 will be met.

Copper:

IMC first quarter allocations take 80 pct of Chile's big mine output.

Chile's cooperation is being depended upon for a portion of the success expected from first quarter 1952 allocations of copper, announced recently by International Materials Conference. The agency also has established distribution quotas for zinc and is keeping the supply-demand position on lead under review.

As in the previous quarter, Chile accepted the IMC copper-zinc-lead committee recommendation with respect to 80 pct of production from its large copper mines. The Chileans reserve the right to dispose of the remaining 20 pct, plus production from its small and medium-sized mines, without reference to allocation plans.

U. S. Gets Most—A total of 744,680 metric tons of primary copper were allocated for 39 free nations, with individual amounts ranging from 366,000 tons for the U. S. to 50 tons each for Cuba and Republic of Korea. Though IMC has a total membership of 28 coun-

tries, requirements of non-member nations also are considered in setting up quotas.

Zinc distribution schedules indicate the U. S. will get slightly less than half the projected allotments of the primary metal—229,000 metric tons of a total 487,650. Of the 37 other nations listed for allocations, United Kingdom leads with 64,000 tons, while Western Germany and France follow with 41,000 and 29,000 tons respectively.

No provision was made for strategic stockpiling of copper and zinc, although IMC has not disposed of the idea that future allocations may require such provision.

DMEA to Handle Mineral Hunts

Exploration leading to discovery and development of new sources of vitally-needed metals and minerals is now the primary responsibility of Defense Minerals Exploration Administration, as the former Defense Minerals Administration now is called.

Acting chief of the agency is C. O. Mittendorf, who held a similar post in DMA. He reports directly to the Assistant Secretary of the Interior for Mineral Resources, Robert R. Rose, who says "every necessary incentive permissible under the law" will be provided to stimulate exploration.

When first set up, DMA was intended to handle programming and exploration and to act as claimant agency to obtain minerals needed by industry. Following the creation of Defense Materials Procurement Agency late in August, however, all but the exploration functions of DMA were transferred to the new body.

New Uranium Sources Announced

Government geologists have made new discoveries of uranium in southwestern Colorado, but none of the finds have been proved to be of immediate interest for commercial production, Interior Dept. says. But it adds that the discoveries are "significant" because they disclose a new potential source.



Ridding Steel of Sulfur

The steel industry has long turned every effort to ridding steel of one of its objectionable impurities—sulfur. Now, Quebec Iron & Titanium Corp., at Sorel, Quebec, is producing steel at a faster rate because it has worked out a short cut to washing out sulfur from its electric furnace melts.

Conventional procedure of freeing sulfur from steel is by adding slag-making elements to the molten charge of metal in the furnace. But Quebec Iron needed a quicker method. Its iron, a product of electric furnace smelting of ilmenite for titanium dioxide slag, was abnormally heavy in sulfur content. The iron usually had an 0.6 pct sulfur content. Time consumed in getting out the sulfur was costly.

Now, the company's nitrogen lancing process is saving time and money. Quebec Iron intrudes an expendable steel lance directly into the molten iron. Through the lance runs nitrogen, an inert gas, carrying with it a processed lime. Injections of slag-forming lime continue until sulfur content is reduced to desired levels.

This, Quebec Iron says, is an entirely new application that will spread through the steel industry. The firm smelts ilmenite containing 40 pct iron in an electric furnace to produce titanium dioxide slag for paint pigments, etc. Iron is a valuable byproduct which is tapped and transferred to basic electric furnaces where carbon must be lowered and sulfur removed.

The picture above shows the heart of the desulfurization process—thrusting the steel lance into the furnace's molten charge for injection of the lime on the body of its carrying medium, nitrogen.

Quebec Iron stresses that the process is beyond the research stage. Cost of nitrogen gas has been compensated for by cutbacks in furnace operating time, power, labor, and time. The company says furnace lining and roof endure at least as long as with the traditional practice. Quebec Iron worked with Canadian Liquid Air Co. in research steps that led to the new process.

TOOLS: Quality Before Quantity

Tool men urge better tools even at the risk of lower production . . . Mass output not the whole answer . . . Survey shows majority of manufacturers want more new tool development.

Indiscriminate churning out of machine tools at high volume quantities is not the complete answer to strengthening industry for its dual task of producing for peace and the possibility of war. Instead, more attention should be focused on turning out better tools in a judicious combination of quantity and quality to put American productivity on the highest plane.

So say the men who use the machine tools, reveals Harry E. Conrad, executive secretary of the American Society of Tool Engineers. Returns of a national study of most major industries, covering large and small plants, indicates that only a small minority believes that sheer mass output will answer crisis tooling problems.

Rate Quality High—The Tool Engineers Society survey indicates that for the most part industrialists thought making better tools more important than the availability of more machine tools. Mr. Conrad reports that 94 pct of all companies queried stated that development of new equipment was vital.

The credo of quality first ranked so high with some companies that one out of three asked for a full-scale program of improving manufacturing machinery. Although industry has no complaints against volume output of tools, there was in the survey a unanimous desire for development of more efficient equipment.

Motive for launching the study was to aid the Society of Tool Engineers in organizing the most successful technical program possible for its Chicago industrial exposition coming up in March. The Society wanted desires and needs of diversified industry known now—and put on record. The survey is being tabulated in detail to provide a detailed argument for quality over mere quantity.

Tool and Die:

Contract work to reach record peaks . . . Backlogs highest ever.

Contract tool and die work will reach history-making peaks in 1952, according to Randolph H. Cope, who is president of National Tool and Die Manufacturers Assn., and vice-president of Bunell

Machine and Tool Co., Cleveland.

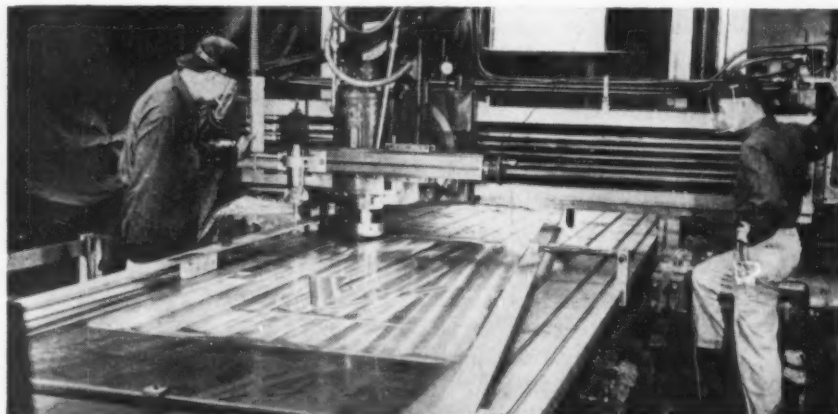
"Backlogs are now at the highest point in the industry's history, and the peak of tooling load will not be reached before the second half of 1952. Dies for jet engine blades and large press forgings, and large fixtures for aircraft will offer special problems," he stated.

Many shops are having to turn away work offered them because they are already booked to capacity for months ahead. Growing recognition of the importance of the contract tool and die industry to the defense program is evidenced in NPA priority aid on materials and DPA tax-amortization policies on plant expansion.

Help Wanted—Such steps will help toward getting greater production, but industry men point out that retaining and expanding work forces is also a vital factor. This can be done in two ways, according to trustees of The National Tool and Die Manufacturers Assn.: (1) Tool shops must be able to meet competitive offers for the skilled mechanics now in great shortage; and (2) training must be encouraged.

Industry spokesmen suggest that, so far as possible, it may be necessary to divide up the intricate and precise tool work among machine specialists who can be developed in a fraction of the time required to train all-around tool and diemakers. There is a limit of course beyond which the breakdown of tooling production steps cannot go.

Present inadequacy of the tool and diemaker supply makes it imperative that these men have efficient equipment with which to work. Tool shops today are working 50 to 60 hr weeks. The tool-and-die Industry Advisory Committee has requested NPA action for a more effective means of providing badly needed machine tools for contract shops. At present from 75 to 90 pct of contract shop work is for such defense armament, a strong point.



FOLLOWER: Skin milling of an aircraft part on planer equipped with an Onsrud high speed milling head, tracer-controlled by Turchan Follower Attachment. The template and tracer at left guides the hydraulically operated cutting tool in close tolerance over the work.

Controls

Buying:

OPS officials to hear lectures on military purchasing methods.

Orientation meetings at which the methods of military procurement practices will be explained to price-control experts are scheduled to begin soon.

Representatives of the Defense Dept. and military services will discuss buying activities, as part of a program to promote closer liaison between Office of Price Stabilization and the Pentagon. OPS officials will visit purchasing offices to witness military contract pricing and re-pricing.

From time to time, pricers will recommend to procurement officers any changes deemed advisable in the pricing field.

Continue Exemptions—Present plan, according to statements by Munitions Board Chairman John D. Small and Price Stabilizer Michael V. DiSalle, is to continue the broad exemption program for certain strictly military items, free from price ceilings since February, 1951. These officials have concurred in the belief that it would not be desirable to place ceilings on such items now, provided "reasonable prices" can be maintained by customary methods.

As an instrument for achieving harmony on procurement matters, OPS is forming a committee ordered to concern itself with pricing of defense goods—basic, intermediate, and finished.

Industry Controls This Week:

NPA Orders

M-93—Limits production of automobile batteries to specified types.

OPS Orders

CPR 30, Amend. 26—Transfers certain copper wire mill products to CPR 110.

CPR 30, SR 5—Allows optional Capehart adjustments to small producers of machinery and related goods.

CPR 67, Amend. 6—Includes copper wire mill product resellers under this CPR.

CPR 110—Provides a tailored pricing regulation for copper wire mill products.



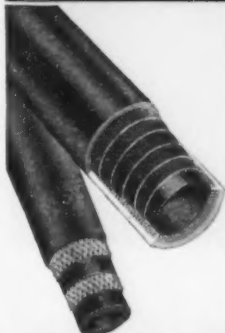
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Controls

New Order Limits Battery Types

Until further notice, production of most automotive storage batteries must be confined to those having a life expectancy of at least 18 months. Manufacture of high amp-hr deluxe types are prohibited.

New order, M-93, which puts these restrictions into effect March 1, is expected to conserve 5000 tons of lead and 10,000 tons of sulfuric acid.

Restrictions apply to storage batteries for automobiles, trucks, and light tractors. They do not affect industrial batteries nor batteries for motorcycles, heavy trucks, tractors or buses.

PAD Lists Oil Well Casing Use

A total of 756,816 tons of casing and tubing was allocated to drilling operators for new oil and gas wells during last-half 1951.

This does not include 44,400 tons in emergency allotments for wildcat drilling, Petroleum Administration for Defense said in making the figures public. Nor, it was added, did it include 41,629 tons in drill pipe allocations.

It is estimated that the 1951 drilling total would amount to about 44,000 new holes for the year. This would be about 700 more than 1950 but 5000 more than in 1949.

Copper Wire Goods Under CPR 110

Copper wire mill products now are priced under terms of a tailored regulation designated as Ceiling Price Reg. 110, effective Dec. 26, 1951. This order was one of three simultaneous Office of Price Stabilization actions covering items containing copper.

CPR 110 sets ceilings for copper wire mill products at levels widely recorded during the General Ceiling Price Reg. base period, Dec. 19, 1950-Jan. 25, 1951. Some price increases and some decreases, both of small quantity, are expected to result from this action.

Other Actions—A second action, Amendment 26 to CPR 30, removed from that regulation in-

ulated electrical wire, covered insulated electrical cable, and certain other copper wire mill products. These now are dealt with in CPR 110.

Third order was Amdt. 6, CPR 67, issued to place resellers of copper wire mill products under this resellers' regulation. Resale quantities of insulated electrical wire and cable, plus cable accessories, were covered earlier by CPR 67.

Small Producers Get New Prices

Manufacturers' ceiling prices probably will advance to a higher level, Office of Price Stabilization predicts, as a result of an order allowing optional Capehart adjustments to small producers of machinery and related items.

Those manufacturers eligible to price under the order—Supplementary Reg. 5, Ceiling Price Reg. 30, effective Dec. 26—must have recorded net sales of not more than \$1,000,000 in their last complete fiscal year ending not later than last July 31. Moreover, net sales in the first half of 1951 could not have been greater than 15 pct above net sales in the corresponding period of 1950.

Any manufacturer meeting these qualifications and pricing under CPR 30 may adjust his ceilings for labor and materials cost increases up to July 26, 1951. If he chooses to price any of his products under SR 5, he must use it for all products covered by CPR 30.

NPA Approves Little Building

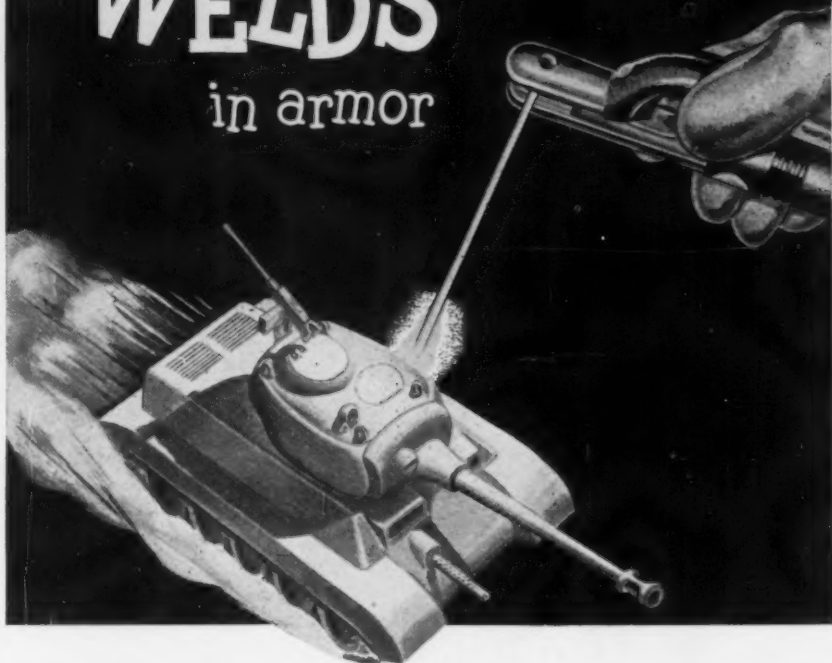
About 80 pct of applications for first quarter construction of commercial, religious, and other community buildings have been turned down by National Production Authority in actions taken to date.

In a mid-December summary, 1610 applications were rejected, against 442 approved. Of this latter figure, 51 applicants were exempt and 41 were granted a construction schedule where no allotment was requested.

As of the date of the report, some 700 cases were still awaiting action.

January 3, 1952

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78% fewer hand injuries and 6¢ per man-hour cost saving follow management study of work gloves



Case No. 207—Problem: Company employing over 1000 men, to shear, form and dip-coat sheet steel products, found production penalized by frequent hand injuries from cuts, heat and acid burns, and resulting infections. Double canvas gloves, used to handle sheets, averaged 4 hours' wear at a cost exceeding 10¢ per man-hour.

Management Solution: Operations study by an Edmont specialist and on-the-job tests

leading to adoption of gloves with tough natural rubber coated palms and thumbs to handle dry sheets, and gauntlets heavily coated with NEOX (reinforced neoprene) for hot galvanized metal and acid baths.

A 78% reduction in hand injuries followed the change-over. The safer gloves also wore 3 to 5 times longer, at average cost-saving of 6¢ per man-hour. (Name of manufacturer furnished on request.)

Hands are Important Production Tools

Our case records of hundreds of operations with sharp, abrasive or slippery materials, with and without the presence of heat, oils, acids, caustics, solvents and degreasants, prove that correct work glove selection results in:

**Fewer lost-time accidents • Faster, surer work handling
Less spoilage • Improved job attitude • 40% to 70%
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Various weights of NEOX coatings on fabric, overall or palm- and -thumb coated only.



Non-Slip Natural Rubber Coated
Comfortable, safer and wear 5 to 10 times longer than canvas gloves.



Vinyl Plastic Coated Work Gloves
High resistance to abrasion, oils, many chemicals. Retain flexibility.

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Coal for Steel:

Three steel companies join coal firm to form new Mathies Coal Co.

To avoid high capital cost of developing new mining operations and at the same time add to their reserves of metallurgical grade coal, three steel producers have joined with Pittsburgh Consolidation Coal Co. to form the Mathies Coal Co.

The steel producers are National Steel Corp., Steel Co. of Canada, Ltd., and Youngstown Sheet & Tube Co.

The new company, in which Pitt-Consol will have a one-third interest, will have a capitalization of \$9 million in capital stock and a debt of \$9 million. The company will buy Pitt-Consol's Mathies Mine, on the Monongahela River 18 miles south of Pittsburgh, including a cleaning and preparation plant and river loading facilities.

Lease Coal Lands—For relinquishing its two-thirds interest in the operation and reserves, Pitt-Consol will receive \$13 million, part of which will be payable over the next 15 years. The Mathies Coal Co. will lease certain coal lands from Pitt-Consol.



COAL PIPELINE: A switching point in the demonstration-size coal pipeline project of Pittsburgh Consolidation Coal Co. near Cadiz, Ohio. Coal is mixed with water to form a slurry which is moved along under pressure. Pitt-Consol expects to come up with conclusive answers in about a year.

It is planned to increase capacity of the mine during the next 2 years to accommodate coal requirements of present Pitt-Consol customers and the needs of the steel producers.

Pitt-Consol will continue to supervise operations at the mine. Principal officers of the company will be G. A. Shoemaker, president; D. H. Davis, vice-president; G. W. Kratz, secretary, and H. K. Yontz, treasurer.

Self-Employed Must File Earnings

If you are an owner or partner in an unincorporated business, you must report to Social Security Administration your 1951 net self-employment income on or before March 15, 1952. Only exemptions are for certain types of professional workers.

All earnings from self-employment over \$400 and up to \$3600 must be reported. If you also work for someone else, you need not report self-employment earnings if your other earnings exceed \$3600. If under \$3600, report only enough of your self-employment earnings to bring the total to \$3600.

Cladmetals Puts on Third Shift

A third shift has been put on in some departments of American Cladmetals Co.'s Carnegie, Pa., plant to handle the backlog of orders. The firm is planning a third shift in all departments by February, and production facilities are being expanded.

Output of Electroshield, a copper-clad steel, is expected to be four times greater in 1952 than in 1951.

Hold Rites for Hastings

Funeral services for Lewis A. Hastings, 64, of 21 Monterey Rd., Worcester, Mass., advertising manager of the Heald Machine Co., were held recently. He had been with Heald Machine Co. for over 40 years.

Mr. Hastings was a member of the National Industrial Advertising Assn., the American Society of Tool Engineers, and numerous other societies.

January 3, 1952

SAFETY FIRST!



Ever think of this—that nearly every machinery maintenance job starts and ends with *wrench-work*? For instance, the nuts that hold the bearing housing of this diesel-electric traction motor to the motor frame must be pulled up *tight*... which means they come off plenty hard! How could you

beat a Snap-on ratchet, such as this husky, big-leverage L-73, for safe, fast, nut turning on jobs like this?

As a matter of fact (a fact which tens of thousands of good mechanics will attest) you can't beat a kit of Snap-on Tools for handling the whole normal range of machine maintenance work. Snap-on Tools are *engineered* to help a man do his best work faster and easier. That's why Snap-on's specialized Railroad Service is welcomed in railroad shops the country over. His job is to be helpful... and he is!



Write for industrial catalog and 104-page general catalog!

*Snap-on is the trademark of Snap-on Tools Corporation.

SNAP-ON TOOLS CORPORATION

RAILROAD DIVISION
8132-A 28th Avenue
Kenosha, Wisconsin



Ingersoll

specializes in . . .

STEELS

THAT RESIST
CORROSION

INGERSOLL SOLID STAINLESS

STEELS

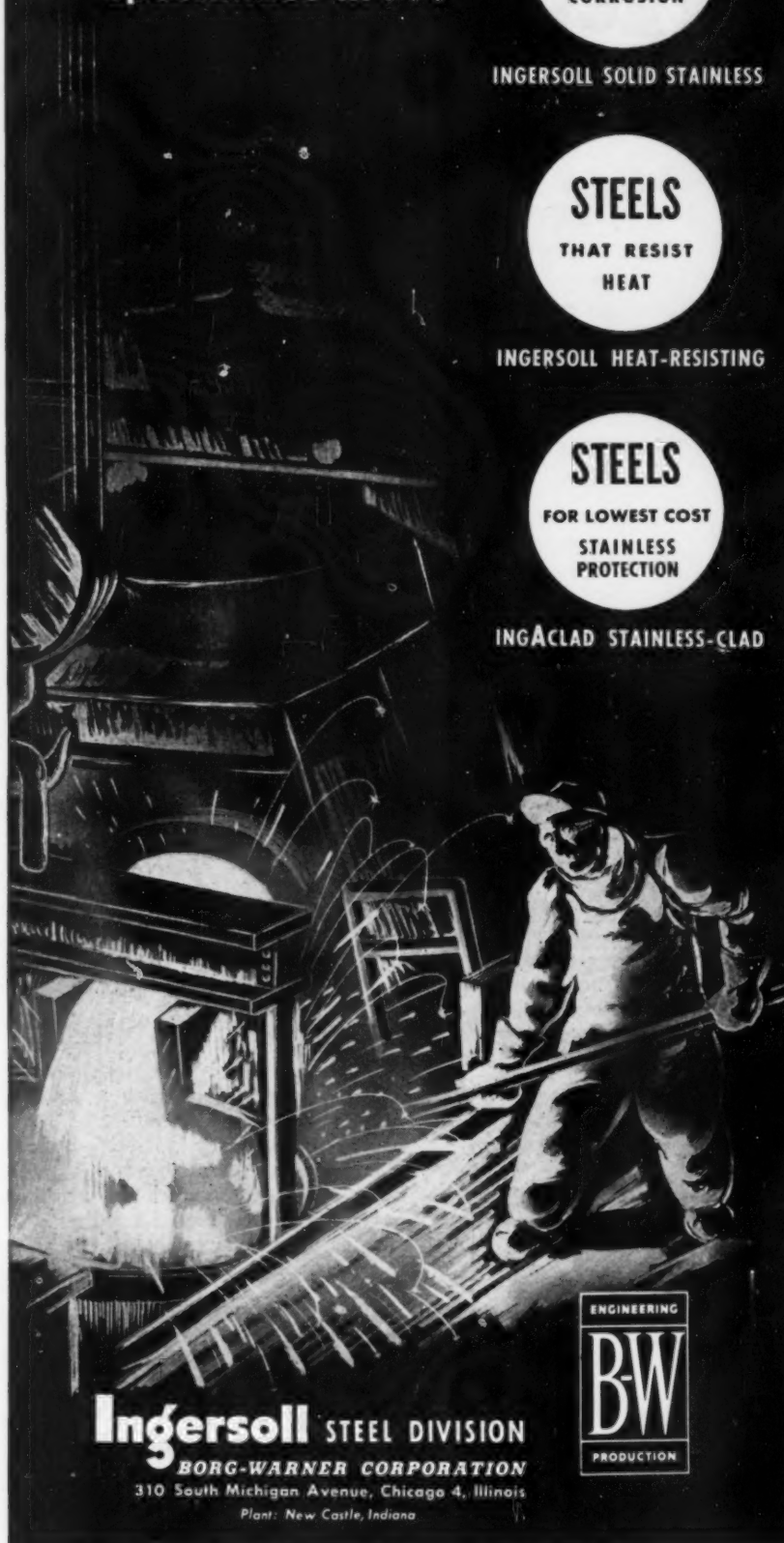
THAT RESIST
HEAT

INGERSOLL HEAT-RESISTING

STEELS

FOR LOWEST COST
STAINLESS
PROTECTION

INGACLAD STAINLESS-CLAD



Ingersoll STEEL DIVISION

BORG-WARNER CORPORATION

310 South Michigan Avenue, Chicago 4, Illinois

Plant: New Castle, Indiana



Defense Contracts

Upper Midwest Subcontract Show

Small businessmen from Minnesota, North Dakota, South Dakota, northern Iowa and western Wisconsin have been invited to attend the Upper Midwest Armed Forces Procurement Display at the Minneapolis Armory, Jan. 8, 9 and 10, to obtain information and assistance on sub-contracts.

Over 3500 invitations have been sent to manufacturers throughout the upper Midwest in an effort to broaden the base of the military procurement program and to help small businessmen in the job of obtaining defense work. Display is being sponsored by the Army, Navy and Air Forces, together with the Minneapolis Chamber of Commerce and other governmental and civic agencies in the area.

Approximately 60 prime contractors are expected to exhibit items they have available for sub-contracting bids.

Government Inviting Bids

Latest proposed Federal procurements, listed by item, quantity, invitation, No. or proposal, and opening date. (Invitations for Bids numbers are followed by "B," requests for proposals or quotations by "Q.")

Navy Purchasing Office, Washington.

Generator, tachometer, 1525, 56592-A, Jan. 16.
Bomb, shackle-MK type with lock, 2667, 5665A-B, Jan. 21.
Torches, soldering, brazing, 936, 5670-B, Jan. 11.
Grinder, plain cylindrical, 1, 2642-Q, Jan. 15.
Shapers, openside, 2, 2637-Q, Jan. 8.
Lathes, motor driven, 9, 2663-Q, Jan. 8.
Hoists, with 3 ton chain falls, 40, 2661-Q, Jan. 11.
Trucks, industrial, hand propelled, 7400, 5682-B, Jan. 8.
Grinder, cylindrical, 1, 3002-Q, Jan. 7.

Mallory AF Specialized Depot, Memphis, Tenn.

Bolts wrenching, 13650 ea., (40-604-52-54), Dec. 27.
Adapter, 1125 ea., (40-604-52-54), Dec. 27.
Bracket assy, 1000 ea., (40-604-52-54), Dec. 27.
Caps, 20850 ea., (40-604-2-54), Dec. 27.
Screw machine, oval head, 5000, 52-777B, Jan. 10.
Screw, machine, rd. hd, 10000, 52-777B, Jan. 10.
Screw, machine, flat hd, 15100, 52-777B, Jan. 10.
Screw, drive, rd. hd, 30000, 52-777B, Jan. 10.
Bolt, lock assy, 8500, 52-894B, Jan. 10.
Guard assy, brush, radiator, 1250, 52-894B, Jan. 10.
Bolt, "U," tire pump air tank and spacer, 210, 52-830B, Jan. 10.
Crankshaft, power tire pump, 150, 52-830B, Jan. 10.
Rivet, winch, drag brake lining, 4000, 52-830B, Jan. 10.
Arm, hand operated wiper assy, 150, 52-830B, Jan. 10.
Handle, hand operated wiper assy, 150, 52-830B, Jan. 10.
Bracket, tailpipe, 280, 52-898B, Jan. 10.
Filter generator, 70, 52-898B, Jan. 10.
Washer, oil pump, 170, 52-898B, Jan. 10.
Muffler assy, 350, 52-898B, Jan. 10.

HERC-ALLOY

SLING CHAINS

Screw, housing, governor, 800, 52-898B, Jan. 10.
Screw, set, sq hd, 10000, 52-777B, Jan. 10.
Screw, set, hdless, 10000, 52-777B, Jan. 10.
Screw, topping, slotted, 60000, 52-777B, Jan. 10.
Screw, topping, slotted, 95000, 52-777B, Jan. 10.
Screw, machine, oval hd, 20000, 52-777B, Jan. 10.
Screw, machine, fl, hd, 20000, 52-777B, Jan. 10.
Screw, machine, flat head, 60000, 52-777B, Jan. 10.
Screw, machine, oval hd, 10000, 52-777B, Jan. 10.
Bracket, spare wheel carrier, 231, 52-886B, Jan. 11.
Hinge, cab, rt side curtain, 2253, 52-886B, Jan. 11.
Shaft, flexible tachometer, 14126, 52-215B, Jan. 10.

Air Material Command, Dayton, Ohio.
Box, bomb auxiliary switch, 10000 ea, 52-462B, Jan. 2.

Aberdeen Proving Ground, Maryland.
Adapter, shaping, 18 ea, 159B, Jan. 10.
Assy, lens mount, 80 ea, 149B, Jan. 10.

Signal Corps Procurement Agency, Philadelphia.
Tools, var, special to spec, var, 10012-12-Q, Jan. 2.
Transformer, voltage regulator, 136 ea, 11826-23-Q, Jan. 2.

Commandant of Marine Corps, Washington.
Spare parts for Auto-Lite generators, 11 itm, 597B, Jan. 10.

Watertown Arsenal, Watertown, Mass.
Traversing thrust bearing assys, 100 ea, 52-131 B, Jan. 11.

U. S. Naval Air Station, Corpus Christi, Texas.
Sleeve, drivers, Daco Rivet Tool, 18 ea, 216-47-52, Jan. 3.

U. S. Atomic Energy Commission, Los Alamos, New Mexico.
Welded steel floor grating, 1 lot, 291-52-42, Dec. 28.

Contracts Reported Last Week

Including description, quantity, dollar value, contractor and address.

Spare parts job, \$33,956, The Star Drilling Machine Co., Akron, Ohio.

Spare parts job, \$38,384, Electric Machinery Mfg. Co., Minneapolis.

Adapter, 15,000, \$246,602, Hatfield Wire & Cable Continental Copper & Steel Ind., Hillside, N. J.

Cylinders, Gas, 10,000, exceeds \$250,000, Linde Air Products Co., New York.

Repair parts, 182 line items, \$14,740, Wagner Electric Corp., Los Angeles.

Automotive, repair parts, 268 line items, \$119,265, Chevrolet Central Office Div. of GMC, Detroit.

Automotive, repair parts, 497 line items, \$75,784, Reo Motors Inc., Los Angeles.

Generator set, self-propelled, 10 ea, \$54,500, Hobart Bros. Co., Troy, Ohio.

Spare parts, \$81,910, Minneapolis Honeywell Regulator Co., Minneapolis.

Stand Assy, Aircraft Propeller, 63 ea, \$79,380, Bonell Machine & Tool Co., Cleveland.

T-6 Propeller Assy., 30 ea, \$25,500, Kindred Aviation Corp., Burbank, Cal.

Kits, spare parts for kits for B-47 aircraft, exceeds \$250,000, Boeing Airplane Co., Seattle.

Spare parts B-36, exceeds \$250,000, Consolidated-Vultee Aircraft Corp., Fort Worth, Tex.

Spare parts for Supply Requests for turbo-superchargers, \$150,000, General Electric Co., Schenectady.

Lathes & Grinders, exceeds \$250,000, Landis Tool Co., Waynesboro, Pa.

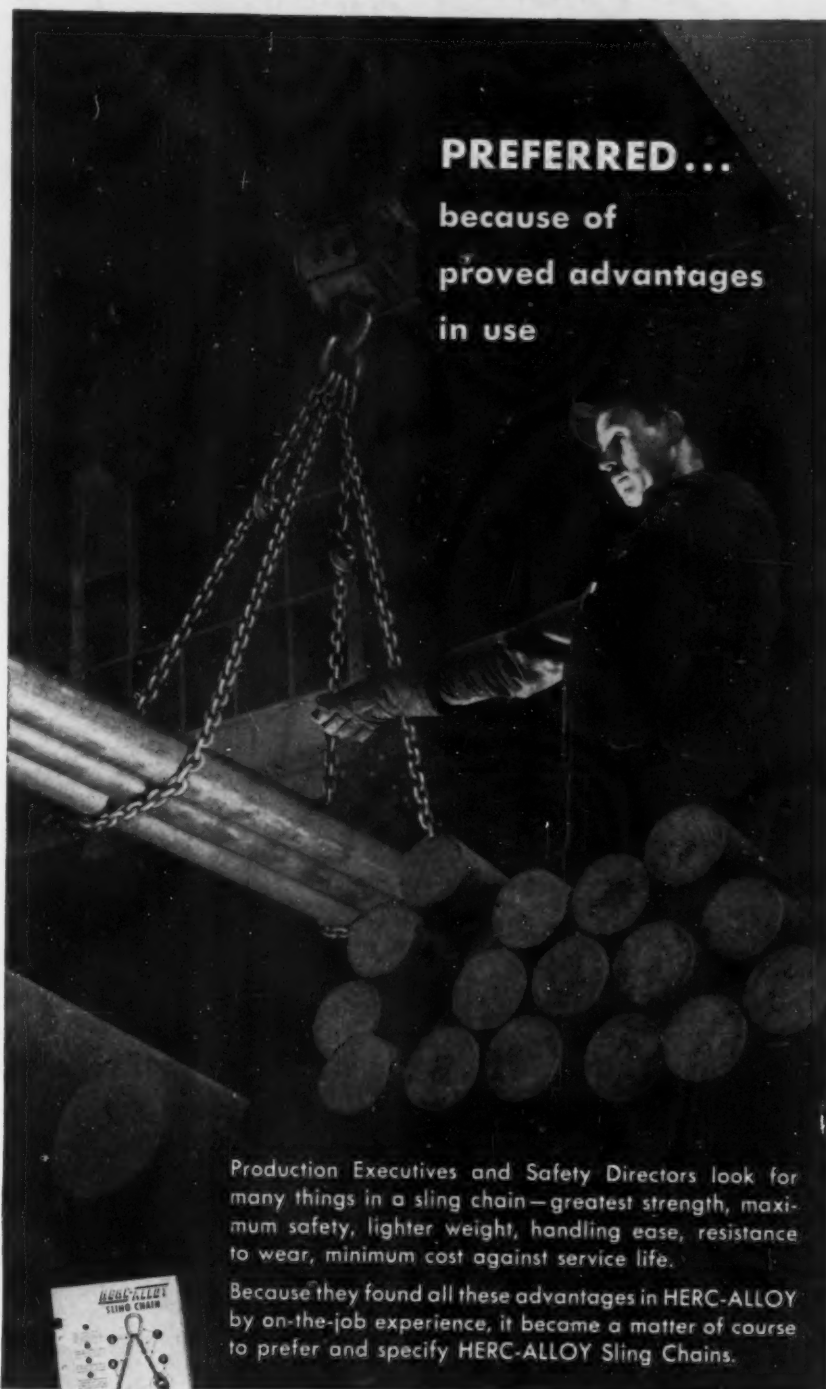
Spare parts, their equip, var, \$26,750, Michigan Power Co., Benton Harbor, Mich.

Spare parts, their equip, var, \$61,250, Linde Air Prod. Co., New York.

Spare parts, their equip, var, \$64,500, Austin-Western Co., Aurora, Ill.

Spare parts, their equip, var, \$190,000, Barber-Greene Co., Aurora, Ill.

Turn Page



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Production Executives and Safety Directors look for many things in a sling chain—greatest strength, maximum safety, lighter weight, handling ease, resistance to wear, minimum cost against service life.

Because they found all these advantages in HERC-ALLOY by on-the-job experience, it became a matter of course to prefer and specify HERC-ALLOY Sling Chains.



Write for illustrated Data Book No. 3 which contains helpful information on sling chain selection and use.

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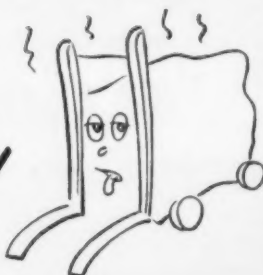
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District Offices: New York • Chicago • Cleveland

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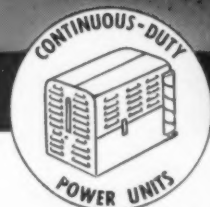
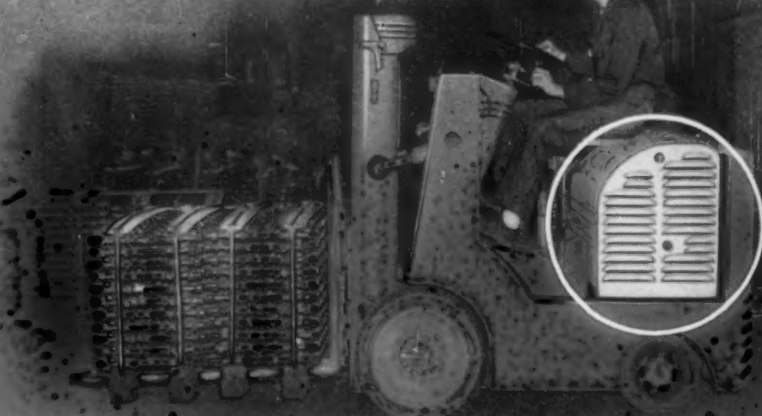
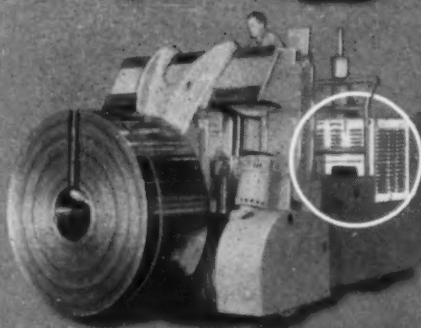
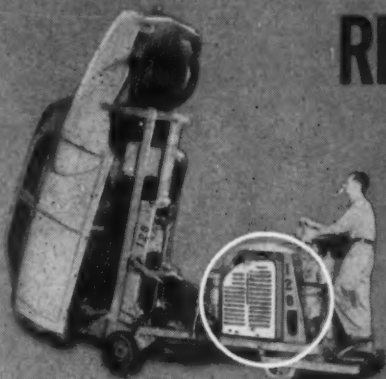
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Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

Defense Contracts

Spare parts, their equip, var, \$26,000, White Motor Co., Cleveland.

Spare parts, their equip, var, \$77,500, United Motors Service Div., GMC, Detroit.

Spare parts for tractors, exceeds \$250,000, Caterpillar Tractor Co., Peoria, Ill.

Spare parts, for tractor var crawler type, \$83,500, International Harvester, Melrose Park, Ill.

Compressor, air trailer, exceeds \$250,000, Worthington Pump & Machinery Co., Chicago.

Compressor, air trailer, exceeds \$250,000, Davey Compressor, Kent, Ohio.

Range Finder, T41, exceeds \$250,000, General Motors Corp., Detroit.

Maintenance parts, 6804 ea, \$79,341, The B. G. Corp., New York.

Maintenance parts, 5400 ea, \$25,630, The Goodyear Tire & Rubber Co., Inc., Akron, Ohio.

Pump assy, 160 ea, \$81,322, Eclipse-Pioneer Div, Bendix Aviation Corp., Teterboro, N. J.

Pump assy, 160 ea, \$31,200, Chandler Evans Div., West Hartford, Conn.

Pressurizing valve, 160 ea, \$56,949, Bendix Products Div., South Bend, Ind.

Maintenance parts, var, \$48,729, Aircsearch Mfg. Co., Los Angeles.

Spare parts, 6040 ea, \$84,016, United Aircraft Corp., East Hartford, Conn.

Maintenance and overhaul parts, exceeds \$250,000, United Aircraft Corp., East Hartford, Conn.

Spare parts, 2168 ea, \$31,002, United Aircraft Corp., Pratt & Whitney Aircraft Div., East Hartford, Conn.

Propeller Spare parts, 500 ea, \$74,225, United Aircraft Corp., Hamilton Standard Div., East Hartford, Conn.

Spare R-2000 parts, 1600 ea, \$35,216, United Aircraft Corp., East Hartford, Conn.

Tubing, ingots bars, sheets and plates, 534-724 lbs, \$184,272, Reynolds Metals Co., Louisville.

Pipe, tubing, ingots, bars, exceeds \$250,000, Aluminum Co. of America, Washington.

Engine, spare parts, exceeds \$250,000, United Aircraft Corp., East Hartford, Conn.

Maintenance parts, exceeds \$250,000, Scintilla Magneto Div., Bendix Aviation Corp., Sidney, N. Y.

Cylinders, 644 ea, \$45,350, Lockheed Aircraft Corp., Burbank, Calif.

Lead Assy, 4860 ea, \$30,618, Breeze Corp. Inc., Newark, N. J.

Spare parts, exceeds \$250,000, United Aircraft Corp., East Hartford, Conn.

Pumps & repair parts, 1647, \$30,780, Northern Ordnance Inc., Minneapolis.

Repair parts for elec. motors, 1932, \$26,715, Elliott Co., Philadelphia.

Repair parts for pumps, 1972, \$51,333, Ingersoll Rand Co., Philadelphia.

Repair parts for diesel engines, 38560, \$121,947, Cummins Engine Co., Inc., Columbus, Ind.

Lathe, engine, heavy duty, 48 ea, exceeds \$250,000, Lehmann Machine Co., St. Louis.

Replenishment of tools, 710 ea, \$31,559, Hoyer Products Co., Belleville, N. J.

Replenishment of tank parts, 1300 ea, \$63,960, Atlas Industries Inc., Woodville, Ohio.

Replacement of tank and combat vehicle parts, 460 ea, \$27,942, Schultz Bros., Inc., Saginaw, Mich.

Small Business Gets Contracts

Once almost solely concerned with subcontracting jobs for bigger manufacturers, small business is now holding prime contracts for Air Force items ranging from fuel tanks to cockpit instruments. Air Materiel Command announced last week that small business has been awarded \$27 million worth of prime contracts in the last 5 months.

This Week in Washington

ANNUAL REVIEW

Tip Productive Scales to Favor Guns

Turning point to great war output nears . . . Technology spurred . . . Truman to seek tougher price controls . . . OPS plans adjustments . . . Check military buying methods—By G. H. Baker.

In Washington's currently blurred photomontage of tightening controls, mounting taxes, and growing tendencies to regiment still further the production might of America, one future development stands out in clearest focus for 1952:

The next 12 months will go down in contemporary industrial history as the turning point in the great transition from civilian production to military production.

Big Push Coming—For the second time within a decade, the brains and sweat of industrial America will be tagged for all-out production of arms. And, unless federal mobilization officials decide unexpectedly to junk their present armament timetable, there is every indication that national output of military goods within the next 24 months will exceed nearly every production record chalked up in the grimmest months of World War II.

Once more, the scales of the U. S. economy are about to be tipped in favor of guns. Manufacture of "butter"—the automobiles, refrigerators, and washers that long have been regarded by Americans as "essentials" rather than as "luxuries"—is about to slip to its precalculated No. 2 position.

Crisis Theory—In John Q. Public, now case-hardened to the almost-constant cry of "national emergency" by the Federal Government, there has unfortunately been developed a wide degree of apathy to dangers of the emergency period.

The "crisis theory" of govern-

ment, in which every minor dislocation in the national economy or in foreign affairs is bewailed in Washington as a "national emergency," is beginning to wear thin.

New Products Boom—But the year ahead in Washington, despite all the bureaucratic boondoggling and political mudslinging to come, will leave an indelible mark on the nation's industrial machine, its workers, and the buyers of its products. Take, for example, the development of new products. The pressure of mobilization is now forcing technological develop-

Billions for Expansion

Business outlays for new plant and equipment during 1951 amounted to well over \$23 billion according to a joint preliminary estimate by Commerce Dept. and Securities & Exchange Commission.

Expansion of iron and steel production facilities ran second only to new facilities for production of petroleum and coal products with a total new investment estimated at \$1.3 billion. Oil and coal expansion amounted to \$2 billion.

Another \$300 million was invested in expansion of production of primary nonferrous metals and \$430 million in facilities for fabricating metal products.

Looking into 1952, the two agencies predicted the present rate of industrial expansion would carry through first quarter and amount to about \$5.7 billion.

ments years ahead of ordinary scientific timetables.

In World War II, the nation was jolted into development of nuclear energy, life-saving penicillin, and the jet engine. Now, only 6 years later, the forces of mobilization are once more building up the drive of necessity that will bring out new products and processes.

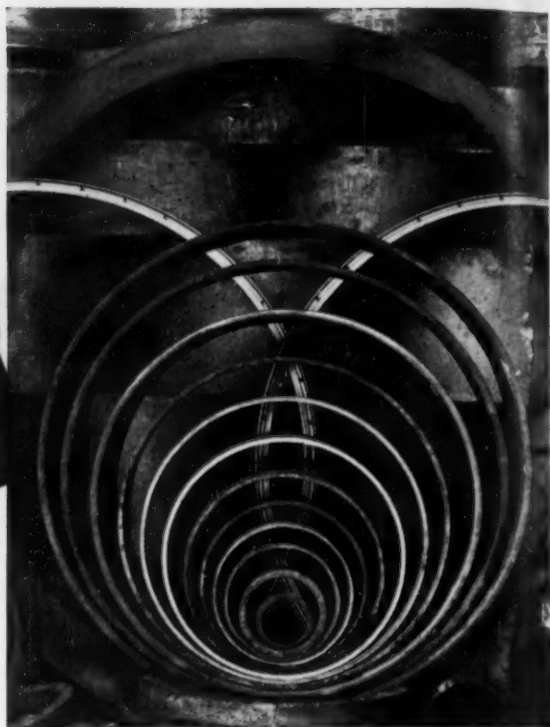
Point of No Return?—By 1953—end of the planned 3-year mobilization program—the nation will be ready for all-out war—or all-out peace. This is the critical year—the year that marks the great turning-point in Washington's guns-AND-butter planning.

Materials Controls—CMP, now that many of its major faults have been remedied by joint industry-government teamwork, will continue in operation during the year ahead in substantially its present form. A number of relatively minor changes are under serious consideration, however.

Example: National Production Authority wants to subsidize conversion steel plate for direct military contracts. Industry says nonsense; there is sufficient plate being rolled. Trouble lies, actually, in NPA's faulty distribution setup. Look for still sharper cuts in steel, copper, and aluminum for all civilian production.

Price Controls—President Truman will, within the next few days, reopen his battle for tougher price controls. The returning Congress is slated to hear the White House again assail the "special interests" who have "ganged up for the purpose of securing special short-run advantages for themselves at the expense of the rest of us."

Congressional feeling, however, is that the present price-control law is adequate to do the job at hand. Leaders on Capitol Hill believe that the law will remain on



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the books as is—at least until the November elections.

OPS Adjustments—Office of Price Stabilization takes the view that the next few months will see the additional adjustments needed to make the law more workable. OPS predicts "effective stabilization" of prices for goods and services at the end of this adjustment period. This prospect does not mean an early and complete leveling-off of prices for manufactured items.

World prices of many raw materials remain higher than domestic prices, as importers of critical and strategic materials well know. No way has been shown to avoid reflecting these higher prices in the finished products—if these products are to retain their high quality.

Taxes—All the forthcoming clamor from the White House and the Treasury for new and higher taxes is falling upon deaf ears at the Capitol. Leaders of both parties are far from convinced that a new tax bite (it would be the fifth in the past several years) is essential.

Main reasons: (1) Recent scandals have shown that there is tremendous "fat" in the government's operations, (2) Congress is hesitant over enacting another tax bill in an election year.

Military Buying—Pentagon brass-hats are being urged to give more thought to civilian needs when preparing their shopping lists. Military is blamed for unnecessarily heavy purchases within short-term intervals.

Justice Dept. complains that Pentagon shoppers are too prone to walk into a small manufacturer's plant, ask what his capacity is, and announce, "We'll take it all." But size of the military buying program in 1952 will be at least as large as for 1951.

Electric Power—Government officials stick to their predictions that the nation will experience

more power shortages in 1952. Pacific Northwest shortage of last Autumn was just a forerunner of what's to come, they state.

By the end of 1952, total capacity requirements will be around 85,000,000 kw, and the generating capacity, if the entire 1952 program is achieved, will be somewhat under this figure.

Seaway Up Again—Mr. Truman will renew his request for the \$800,000,000 St. Lawrence Seaway. Congressional backers believe they will win enough votes this year to secure joint U. S.-Canadian participation in the undertaking. But the Canadian government is making it increasingly clear that it intends to build the Seaway—with or without U. S. help.

Sponsors in both countries are pointing out that the Seaway would allow iron-ore ships to carry cargoes from Labrador to inland steel plants without running the risk of enemy attack on the high seas.

Taft-Hartley Law—The longer this statute stays on the books, the less its chance for repeal, Mr. Truman and national labor leaders continue to snipe away at its provisions, although not nearly so

vehemently as they did a year ago. White House position is unchanged: Taft-Hartley must go.

In Mr. Truman's most recent statement on this subject, he said he would continue to fight a plot of cut labor's strength "into little pieces." He said he wanted a law that would "insure free unions and free collective bargaining, and be fair to both employers and employees."

Employment—Government experts estimate about 11,000 applicants are needed to fill vacant jobs in the professional and managerial fields. Engineers, mostly in the electrical and mechanical fields, are in heaviest demand. There are now openings for about 2400 mechanical engineers and for 1500 electrical engineers, U. S. Labor Dept. calculates.

In other fields, biggest demand is for mechanics and other skilled machine-shop workers, tool makers, die sinkers and setters, draftsmen, stenographers, and typists. Regional unemployment will persist to a certain extent, particularly in New England.

Foreign Aid—Resentment is growing among both Democrats and Republicans against the "operation-rathole" type of foreign assistance handed out by the State Dept. Example: U. S. taxpayers helped pay for nationalization of Britain's steel industry.

Now, with "Made in Pittsburgh" plaques on much of the new steel-mill equipment in England and Wales, the State Dept. naively quotes the British as "hoping that our new mills soon will be out-producing even our American friends."

Coal—U. S. exports to all parts of the world appear to be headed for an all-time record of about 80,000,000 tons. About 50,000,000 tons will be shipped to Western Europe during the coming year, despite the charge that Europe's failure to dig its own coal is "one of the black marks on an otherwise fine recovery record."



Industrial Briefs

Relocated—MALLORY-SHARON TITANIUM CORP. moved its general offices from Indianapolis to Niles, Ohio, Jan. 1. The company's titanium melting furnace in Indianapolis is being moved to Niles, where three new furnaces to be installed there will raise melting capacity to 2 million lb in 1952. Headquarters will be established at the Niles Rolling Mill Co. plant.

New Quarters—ECLIPSE FUEL ENGINEERING CO., Rockford, Ill., has moved into its new single floor layout plant and office building. The one floor plant occupies 95,200 sq ft of floor space.

Acquisition—Farrel-Birmingham Co., Inc., Ansonia, Conn., has acquired the common stock of CONSOLIDATED MACHINE TOOL CORP., Rochester, part of the consideration being securities of Farrel-Birmingham Co.

Transfers Office—GERRARD STEEL STRAPPING CO., a U. S. Steel subsidiary, will transfer its Southern Division plant and offices from New Orleans to Birmingham, and will be located at Ninth Avenue and 20th Street, North.

On Order—Contracts for the construction of ten all-steel 80 by 30 ft lighters have been placed by the Pennsylvania Railroad with the AMERICAN BRIDGE CO. Deliveries will begin in the latter months of 1952.

New President—Clayton Grandy, vice-president of the TODD STEEL CORP., Detroit, has been elected president and chairman of the board of the Steel Products Warehouse Assn.

Announcement—NATIONAL ELECTRIC PRODUCTS CORP. has closed its Philadelphia warehouse and its operations transferred to the corporation's new manufacturing plant in Linden, N. J. The Philadelphia sales office is now located in the Architects Building, 17th and Sansom Streets.

To Represent—Northwest Chemical Co. has appointed the JOHNSON

SALES CO., Montclair, N. J., as their Middle Atlantic States representative.

Conference—The first International Conference on Underground Gasification of Coal will be held at the Gorgas, Ala., plant of ALABAMA POWER CO. Jan. 28-30, 1952. European scientists and engineers from Belgium, the United Kingdom, France and Italy will attend. The third phase of a joint U. S. Bureau of Mines-Alabama Power gasification experiment is being conducted at Gorgas.

Company Formed—Edward Sper and Roy Sper have formed SPER & CO. with offices at 70 East 45th St., New York. They will represent national manufacturers of etched and stamped metal parts, radium application, and screw machine parts.

Takes Over—International Minerals & Chemical Corp. has acquired all of the outstanding capital stock of EASTERN CLAY PRODUCTS, INC., and simultaneously created a new Industrial Minerals Division, into which that company will be absorbed.

Distributor Named—American Smelting & Refining Co. has appointed COPPER & BRASS SALES, INC., 7711 Grand Ave., Cleveland, as Cleveland area distributors for ASARCON 773 BRONZE Continuous-Cast Bars and Tubes.



Plant Addition—The one story plant addition of WHITNEY CHAIN CO. is nearing completion. The new building, which is expected to be in use shortly contains approximately 10,000 sq ft of additional floor space.

Consolidated—On Dec. 31, eighteen operating subsidiaries of U. S. Steel Corp., ceased doing business as separate companies and were merged into U. S. STEEL CO.

Housewarming—TENNESSEE COAL, IRON & RAILROAD CO. held its housewarming Saturday, Dec. 22, for 3,000 invited "friends and neighbors" at its new \$6,500,000 office building at Fairfield, Ala.

Nears Completion—Expansion of the plant of CENTRAL FOUNDRY CO., Holt, Ala., is nearing completion in preparation for starting work on a \$10 million shell contract for the U. S. Army.

Annual Bonus—LINCOLN ELECTRIC CO., Cleveland, paid \$4,121,426 to 1082 employees for its eighteenth consecutive distribution of incentive pay in a year-end annual bonus. The checks which averaged 104 pct of a worker's regular earnings brought average total earnings of Lincoln workers to \$7,446.

Manufacturing Space—The BASSICK CO., Bridgeport, Conn., has leased the entire one-story building in the New Haven Terminal property. This addition provides manufacturing space for production of heavy-duty casters required by the rearmament program.

Revolving Credit—AMERICAN MACHINE & FOUNDRY CO., New York, has signed a \$13 million 3-year revolving credit with a group of banks headed by the Manufacturers Trust Co. of New York, in order to finance its \$100 million backlog of orders.

Planning Ahead—CECO STEEL PRODUCTS CORP. has purchased additional land for future needs at Minneapolis, San Francisco, Los Angeles, Chicago, Pittsburgh and Kansas City. The firm manufactures metal building materials.



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Vehicle Output Skids on Defense Road

Auto production drops 20 pct in 1951 . . . Exports improve . . . Bars, billets to remain headache . . . Detroit tools for war role . . . Cutbacks in '52 to be limited—By W. G. Patton.

The defense program cut deeply into motor vehicle production during 1951. There was a 20 pct decline in passenger car production compared with a year ago. Total assembly of cars, trucks and buses is estimated at 6,806,000 units. This compares with a record 8,003,045 units produced during 1950.

Estimated passenger car production is 5,373,000 units, compared with 6,665,863 passenger cars built in 1950. Truck production is expected to exceed the 1950 total by 100,000 units. Preliminary figures for the year show 1,433,000 truck units were assembled in U. S. plants.

Registration Peak—For the first time, motor vehicle registrations exceeded the 50 million mark, reaching 52,236,000. Net gain in cars on the road during the year was 3 million units.

Average age of passenger cars in service was estimated by Automobile Manufacturers Assn. to be 7.8 years in Dec., 1950, and 7.3 years at the end of 1951. There are 18 million cars on the highway over 10 years of age. The number of cars scrapped during the year is expected to exceed 3 million.

Exports Rise—Automobile exports improved during 1951, with 478,000 units shipped abroad. This is an increase of 57 pct over 1950.

The auto industry and the public alike failed to note that the 100 millionth passenger car was produced during 1951. The 1 millionth car was built in 1912.

Thirteen years later the 25 millionth milestone was reached. In 1935 the industry turned out its 50 millionth passenger car. In 1946, the 75 millionth automobile was built. Nearly 25 million passenger cars have been built during the

last 5 years—one-fourth of all the cars produced since 1900.

Still Troublesome—Barring a steel strike, 1952 will see an easing of auto steel for some classifications. However, steel will still be a troublesome problem for Detroit. As the year came to a close, a few grades—seat wire is an example—were comparatively easy. At the same time, upsetting wire was very tight.

Changes in mill rolling schedules from light gage sheet to heavier plate were ruining earlier calculations. Each of the so-called hot top grades used for carbon and alloy bars was very tight. This situation will likely worsen during 1952. Carbon and alloy bars and forging billets will be Detroit's No. 1 steel problem in '52.

Conserving Nickel—During the year, the auto industry eliminated nickel plating from every unessential application. Nickel was still being used, however, on bumpers and door handles.

Copper-chrome die cast ornamental parts were protected with lacquers and other protective coatings to offset, in part, the loss of nickel. Chromium type stainless moldings and trim have replaced 18 pct chromium, 8 pct nickel for decorative trim. The 1952 models shown thus far use bright work extensively. There has been some reduction in plating on a few models. The reduction is hardly noticeable. New models will be bright and shiny—but plating protection is hardly up to snuff.

Aluminum Easier?—The aluminum situation promises to improve during 1952 and the auto industry will take full advantage of this improvement. Assuming all of the U. S. light metal is not diverted to aircraft, 1952 should see a substantial increase in the number of automotive applications for aluminum and magnesium.

The industry's biggest headache



NEW TANK: Blacked out against the skyline for security reasons, our newest, heavy tank, the T-43, stands at Chrysler's Delaware Tank Plant.

is copper. While aluminum and copper-clad steel have shown promise, neither is an entirely satisfactory substitute for copper. Copper and brass will still be used for radiators during 1952. Experiments with copper and brass substitutes on a limited scale have not worked out and the industry has been forced to replace many of the substitute radiators. Progress in this field will be slow.

Tooling for War—During 1951 the automobile industry struggled to keep assembly lines rolling while its master mechanics devoted the major part of their energies to tooling for defense. Many new machine tools for defense were delivered to auto plants. Additional machines were obtained from government surplus. A few plants are rebuilding machines for defense. Some are building their own machines.

One fact about defense stands out like a sore thumb: Building jet engines is a toolroom job—not a production line job. The scarcity of Bullard machines, T-lathes, engine lathes and other single purpose, versatile equipment is evident everywhere in an industry which has expended much effort to develop automatic, high production special purpose machines.

More Machine Tools—As the year came to a close the machine tool bottleneck appeared to be eased. Machine tool producers were getting the steel they needed. Tooling firms were subcontracting many jobs. Fisher Body and others were building machine tools under licensing agreements. Automobile toolrooms were helping out wherever possible. The machine tool problem was being licked—but there was still a long way to go.

The labor picture was puzzling. Five-year contracts eliminated strikes resulting from general wage demands. However, disputes over production standards were widespread.

High Compression—Last year will be remembered as the period

in which the industry went all-out for high compression engines. Cadillac, Oldsmobile, Studebaker, Chrysler and DeSoto are now in production on overhead valve engines. The Ford-6 and Lincoln will come in during 1952. Ford V-8, Dodge, Buick and Ford tractor may reach production by the end of the year—if defense work doesn't interfere.

Pontiac and Packard have made some inquiries about tooling for high compression engines. The earliest these engines can hope to reach production is 1953. At the year end special efforts were being made to rush auto tooling to completion ahead of Feb. 1.

To Best Advantage—Automation was the biggest processing development during 1951. The new Ford assembly plant at Buffalo makes use of automatic handling of material in and out of presses to a degree that was previously unheard of. Similarly, the new DeSoto engine plant utilizes big transfer machines in unprecedented numbers.

Automatic materials handling will be the outstanding feature of the new Ford-6 engine plant at Cleveland. Machines are replacing manpower in auto plants at a rate that exceeds the strong previous trend in this direction.

Small Future Cuts—This year will be an election year. Whether by coincidence or political necessity, election years are usually good years for business.

The industry expects to start the year at a gait of about a million cars per quarter. Some observers see a decline during the second quarter. However, between threatened unemployment and the well-demonstrated necessity of motor transportation in our way of life, further cuts, if they are made, will be limited.

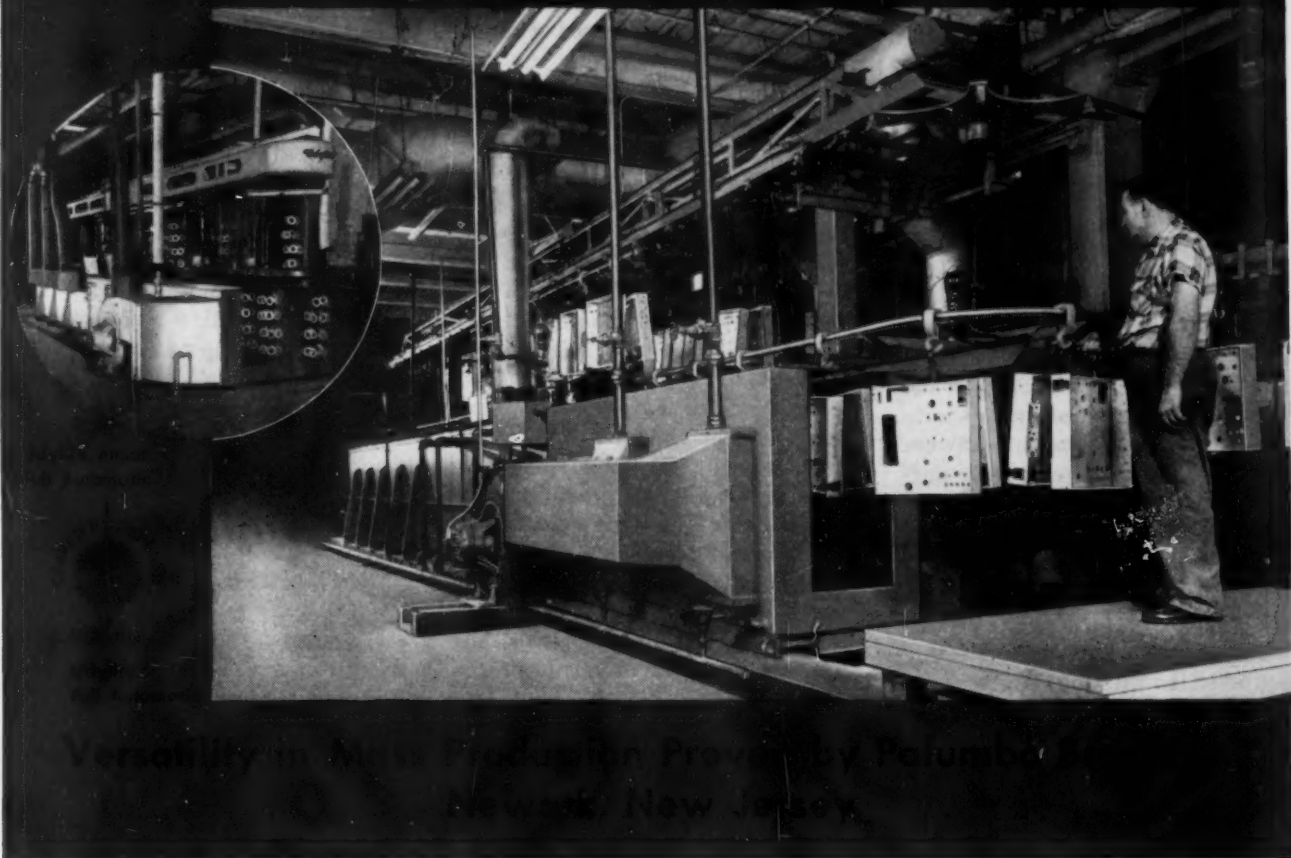
Barring all-out war, Detroit expects to have another busy year. At the end of 1952, most defense production items should be in high gear. Tank plants will be rolling and reciprocating aircraft engines will be assembled in good volume. Jets will require more time.

THE BULL OF THE WOODS

By J. R. Williams



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DETROIT 11, MICHIGAN

Metals Expansion Sets Records

Percentage increases in ingot capacity and output equal or better than rest of country . . . Growth general throughout area . . . More planned in future — By R. T. Reinhardt.

Producers and fabricators of metals in the seven western states deserve a "well done" citation for their achievements in 1951. Increases in ingot capacity and production equaled or exceeded those in any other part of the country percentage-wise; and employment in metalworking industries is at an all-time high.

Western furnaces poured about 3 pct more steel than their rated capacity, and mills rolled about 3.5 million tons of finished steel to set a record.

How It Was Done—Kaiser Steel Corp. got its eighth openhearth in production in May to add 180,000 tons to its capacity; Bethlehem Pacific Coast Steel Corp. put its third electric furnace on the line last month at Los Angeles to increase capacity to 384,000 tons, and Seidelhuber Steel Rolling Mill Corp. began operation of its 48,000 ton per year capacity electric furnace in December.

Switch Completed—When Bethlehem started its third electric furnace at Los Angeles it marked the end of 26 years of operating three openhearths there. They had poured 1.5 million tons of steel. The company now has one 50-ton and two 75-ton electrics which produce 300 pct more steel than was turned out 5 years ago in the openhearths.

Finishing facilities have kept pace: the 12-in. rolling mill has been rebuilt; wire drawing production has been increased 20 pct in the past year, and the bolt and nut department modernized.

Others Not Idle—During 1951 Geneva Steel Co., Utah, has completed about 60 pct of the work

on its tenth openhearth which will add 160,000 tons to its capacity in the first quarter of 1952. New facilities for production of hot-rolled sheets are about 80 pct complete and will be in production in the second quarter.

Columbia Steel Co. at Pittsburg, Calif., expects to have its additional cold-reduction mill and electrolytic tinning line in operation in the first quarter and the continuous galvanizing line working by the second quarter.

Kaiser Steel Corp. looks for its cold-reduction mill at Fontana to be past the shakedown stage in June and to have the tinplate line producing shortly thereafter.

Completion of these two tinplate facilities could theoretically provide the western market with all

but about 150,000 tons. However, tinplate production will fluctuate with demand for cold-reduced sheets and imports from the East will probably exceed 300,000 tons.

Expansion Plans—Further increases in steel capacity in the West can be expected in 1952 in addition to those announced or started. Even some of the more conservative producers admit that growth of the western market justifies still more furnaces and finishing facilities.

Judson Steel Corp., which has three openhearths at Emeryville, Calif., with a total capacity of 76,500 tons, is now studying bids on contracts which would double capacity. Serious consideration is being given to changing over to electric furnaces. Product range will be expanded.

Seidelhuber in Seattle expects to have a 20-in. strip mill in operation within a year or 18 months and has plans to augment its ingot capacity with a 70-ton electric.

More Growth—Southwest Steel Rolling Mills in Los Angeles plan to increase production.

Western Tube, a newcomer to the West, has selected a site for its electric furnaces and tube mill near Whittier, Calif. The company has a \$10 million certificate of necessity and is believed to be solidly financed.

People's Choice—Optimism over the continued growth of the western steel market is based on sound statistics. People—and people make markets—are continuing to move westward at a rate which still astounds the experts. With about 17 million persons in the seven western states now as against 11.5 million pre-World War II, it is estimated that the rate of increase will be between 32 and 66 pct by 1975.

One competent analyst believes a market for as much as 8 million tons of steel will exist in the West by 1960.



STAINLESS DRILLING: Standard Steel Corp., Los Angeles, uses this 7-ft diam jig and fixture to drill 12 accurately positioned holes in top of large stainless pressure tank.

Precision Shaved Gears

to Drive the.....

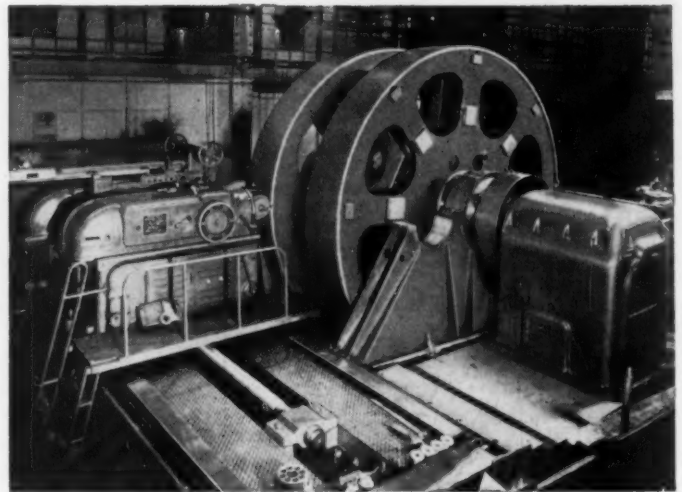
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Shipment Rate Will Double in 1952

Another \$1.5 billion in new orders may hit machine tool industry in first half of new year . . . Shipments may double . . . Washington cooperates . . . Labor stays short—By G. Elwers.

The machine tool industry faces in 1952 the biggest job in its history. To a backlog which topped \$1.5 billion by the end of 1951, another \$1.5 billion in new orders is expected to be added in the first half of 1952. And the rate of ordering will probably not slacken much in the last half of the year.

These are big figures in an industry currently straining to be able to ship at an annual rate of about \$820 million.

Shipments Double—The industry shipped in 1951 about \$620 million in new machine tools. Its shipment rate doubled in 1951 and may more than double in 1952. Total 1952 shipments are expected to be between \$1.2 and \$1.4 billion.

But this will not be enough. The machine tool shortage will grow worse in 1952. It will not actually be much worse; in fact, backlogs may drop slightly before the end of this year. But it will seem worse as the effects of present backlogs show up in delayed tools for defense plants scheduled to go into operation in 1952.

Cooperation, at Last—But meeting the production challenge will be easier for the industry in 1952. During the past year Washington's attitude toward the machine tool industry changed from one of virtual indifference to one of willing cooperation. After several false starts, a fair price order was issued.

V-loans and advances on pool orders further helped solve financial problems. Priority ratings accompanied pool orders. Priority equal to that of the military and atomic energy projects was granted in midsummer, lost, then restored.

Labor Shortage—A critical shortage of manpower remains as the big block to expanded machine tool production. Employment in the industry rose by about 10,000 workers during the year, despite serious competition from higher-

For facts on machinery, see Sec. 6, Metal Industry Facts, p. 455.

paying military production plants.

But an estimated 25,000 additional workers will be needed to fully man facilities.

Declining employment in civilian industries helps somewhat, but most workers so released lack necessary skills to be of much use.

Subcontracting—As 1951 progressed the industry took increas-

F-B Buys Consolidated Tool

Farrel-Birmingham Co., Inc., Ansonia, Conn., has purchased the common stock of Consolidated Machine Tool Corp., Rochester, N. Y. The transaction gives F-B additional machine tool manufacturing capacity. Limiting factors have made it impossible so far to expand the machine shops in the company's Ansonia and Derby, Conn., plants to keep pace with foundry and pattern shop growth.

Consolidated was formed in 1922 through the merger of several machine tool builders. It will now be operated as a subsidiary corporation of F-B, with Arthur H. Ingle continuing as president. Mr. Ingle will also become a director of F-B.

ing advantage of the production facilities and skilled labor available in civilian industry. Materials regulations have cut production in plants making machinery for such industries as textiles, food canning, printing, shoes, and papermaking.

Many of these makers are becoming manufacturers, under sub-contract, of machine tool subassemblies or even entire machine tools. Likewise, smaller or less well-equipped shops are subcontracting individual parts or groups of parts.

Not the Utmost—But full utilization of the subcontracting facilities which helped so much in World War II was blocked in 1951 by the fact that civilian production has not been cut back nearly so much.

This situation will improve in 1952 but many shops which subcontracted machine tool parts in the last war will still be making civilian parts this year. Still, machine tool builders will try in '52 to subcontract over 30 pct of output.

Finances Down—Expansion of machine tool manufacturing plants was throttled in 1951 by the tight financial situation in which most builders found themselves, and Washington slowness in granting certificates of necessity. Although these conditions have been improved, only cautious expansion will occur in 1952.

Builders know bad busts inevitably follow big booms like the present one, and that therefore a time is coming when even present production capacity may be more than is needed.

Heavy Imports—The upswing in imports of foreign-made machine tools which began in 1951 will continue this year. Machine tool production, particularly in France, Germany, and Italy, has increased greatly.

New designs make many of these tools closer in quality to their American counterparts.

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The **Iron Age**

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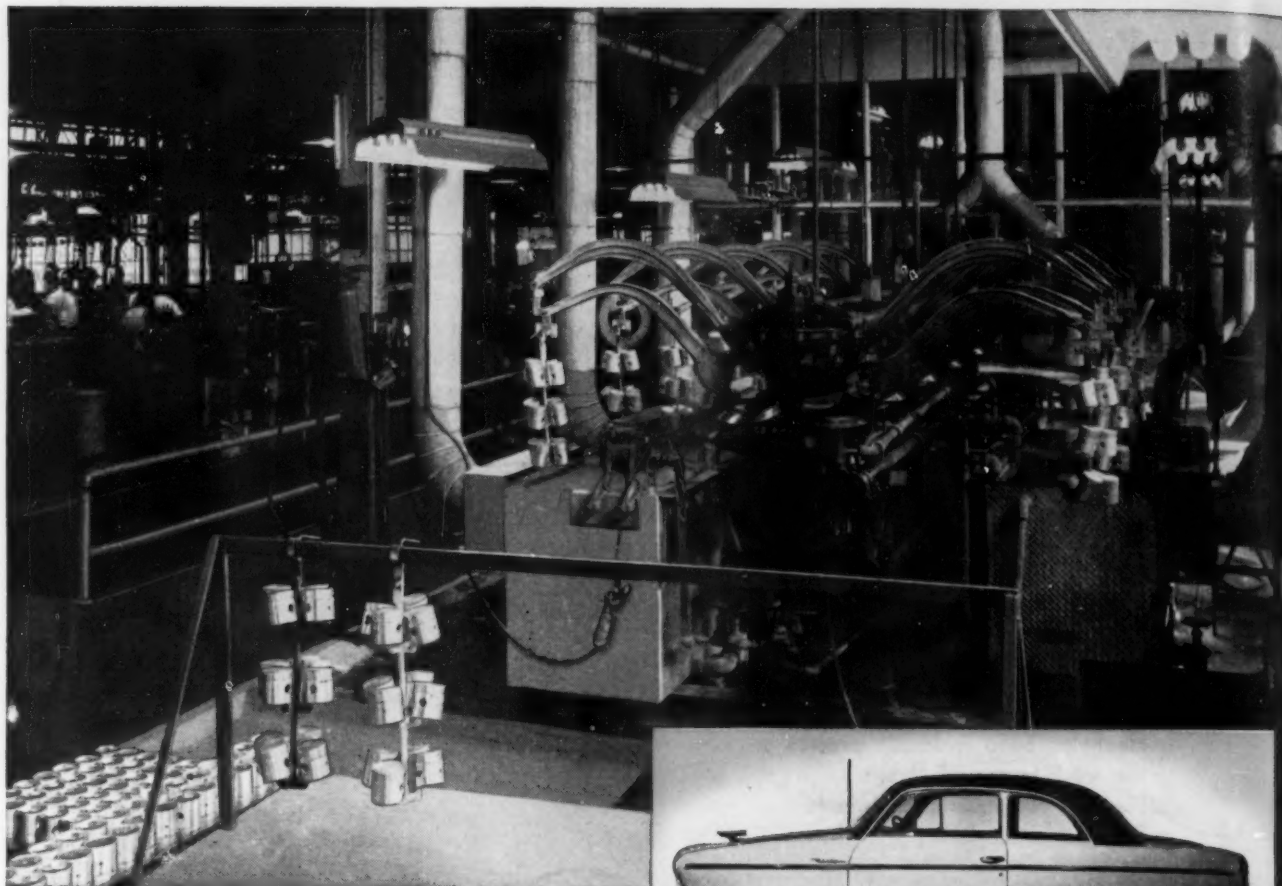
John takes off his coat when he gets to work. When he walks past the big automatic in the back bay, or the buffing wheel, or through the warehouse or shipping room he knows the people who work with him—their first names, even their troubles. He's that kind of man—friendly, interested.

His confidence is inspired by belief in himself and his organization. He has a forceful personality, tempered by personal modesty and sound common sense.

John was a draftsman for Pennsylvania R.R. when he became interested in machining and in 1920 organized Superior Stamping & Plating Co. Later he worked for Hanes Auto Co. Then he joined Logansport Machine Co. as plant superintendent—and stayed to become president. He gained 20 years' experience in hydraulics.

His wide experience in production and hydraulics is well recognized. He's a member of the advisory committee of the National Machine Tool Builders Assn., and a director, machinery division, of the Society of the Plastic Industry.

Knoll Crest Dairy is his pride and joy. His pure-bred Guernsey cows make a show herd. When it comes to relaxing, he seeks out the cold, clear pools of a fast stream to quietly lay down a fly for the wary trout.



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The versatility and dependability of the Stevens plating machine is clearly demonstrated at the Willys-Overland installation by:

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Recently introduced, the new Willys Six is the newest addition to the renowned line of Willys-Overland automotive products.

fits in harmony with all production line requirements.

2. **Ease of control. Single, absolute control permits minimum man-power requirements.**

3. **Low maintenance. Costs for repairs, parts and service are virtually non-existent.**

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The Iron Age

INTRODUCES

E. G. Sammann, appointed West Coast representative for the SANDVIK STEEL, INC., New York. Mr. Sammann will be located in Pasadena, Calif.

Charles T. Nichols, named manager of the new lamp plant of WESTINGHOUSE ELECTRIC CORP., now under construction at Reform, Ala.

G. R. Monkhouse, named vice-president, Western Division, for SHELL CHEMICAL CORP.

Robert T. Rollis, named chief inspector of the pressed metal and plating plant, Oldsmobile division, GENERAL MOTORS CORP., Detroit. Mr. Rollis succeeds S. C. Starnaman who has been placed on special assignment. William Freeman has been named superintendent of the plant.

Clyde H. Slease, appointed administrative assistant to the president of DRAVO CORP., Pittsburgh.

Dr. Arthur B. Hersberger, appointed manager, products sales division, ATLANTIC REFINING CO. John Martin Hoener has been named manager, chemical products section, domestic sales department.

John J. Doyle, named manager of power tube sales, electronic tube division, of WESTINGHOUSE ELECTRIC CORP., Pittsburgh.

John Paul Dyer, retired as vice-president and director of the PHELPS DODGE REFINING CORP., New York.

Norman E. Carlson, appointed assistant chief mechanical engineer of the AMERICAN CAR & FOUNDRY CO., New York.

John W. Meader, elected assistant vice-president of the GREAT LAKES CARBON CORP., New York.

Howard U. Herrick, appointed president of the E. W. BLISS CO., Canton, Ohio.

Edward W. Hanson, retired from the firm of SAUER, INC., Pittsburgh. Mr. Hanson had been employed at Sauer for 33 years.

Arthur W. Bull, elected vice-president in charge of engineering of MICHIGAN WIRE CLOTH CO., Detroit.

W. H. Bobear, appointed as manager of subcontracting for the GENERAL ELECTRIC CO. Aeronautic and Ordnance Systems Department, Schenectady.

John W. Brown, made top sales executive, reporting directly to the president of the NATIONAL GYPSUM CO., Buffalo. Wade W. Hildinger was made assistant general sales manager. Dean D. Crandell will now devote his efforts to export, industrial and contract sales, including the development of more products and wider markets.

E. Wayne Spaulding, appointed to the staff of field engineers of the PARKER-KALON CORP. Mr. Spaulding will cover the middle Atlantic states.

Henry H. Russell, joins BITUMINOUS COAL RESEARCH, INC., Pittsburgh, as a development engineer.

C. John Sundberg, appointed assistant to the vice-president in charge of sales for the Abrasive Div., NORTON CO., Worcester. Stephen Smith was named supervisor of the Worces-

Turn Page



JACKSON KEMPER, appointed as general manager of sales, Distributor Products Div., Watson-Stillman Co., Roselle, N. J.



THEODORE M. DILLAWAY, recently elected assistant vice-president of the Buffalo Forge Co., Buffalo.



GEORGE B. KELLOGG, recently elected assistant vice-president of the Buffalo Forge Co., Buffalo.

Personnel

Continued

Fred L. Nonnenmacher, named manager of the Chicago district sales for AMERICAN STEEL & WIRE CO., succeeding E. A. Murray who has resigned. S. W. Goodenough was appointed manager of the manufacturers' products sales department and R. H. Hauger becomes assistant manager of manufacturers' products sales.

Donald Armstrong, resigned as president and director of the UNITED STATES PIPE & FOUNDRY CO. to accept a post abroad in connection with economic mobilization in Europe. N. F. S. Russell has been elected president, Huber F. O'Brien a director.

John L. Moore, elected as vice-president in charge of purchasing and Robert L. Purcell as treasurer of EKCO PRODUCTS CO.

Ralf H. Millsap and Frank A. Bosch, named vice-presidents and T. W. Fryou has been appointed treasurer of the PORTLAND GENERAL ELECTRIC CO.

John M. Thompson, Jr., appointed vice-president of UNDERWOOD CORP., Philadelphia.

J. B. Ford, Jr., elected a director of DETROIT STEEL PRODUCTS CO.

Edward L. Taylor, appointed manager of the lamp and lighting sales division of INTERNATIONAL GENERAL ELECTRIC CO.

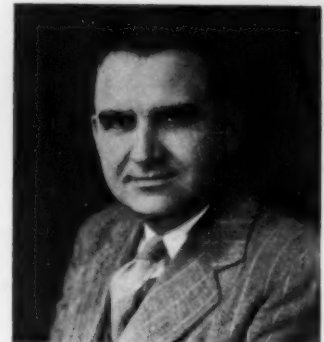
P. B. Doran, named chief, commercial sales, PRATT & WHITNEY AIRCRAFT CORP., Hartford, Conn.

R. B. Blythe, named executive chief engineer of the Bryan factory of ARO EQUIPMENT CORP. J. R. Markey, appointed sales manager of the aircraft division.

Russell S. Roeller, named general sales manager; Albert H. Clem, field sales manager; Edward S. Garverich, manager of technical service; and Arthur G. Tunstall, Jr., manager of marketing for PENNSYLVANIA SALT MFG. CO.



J. C. WILLEY, recently appointed assistant to the president of Harbison-Walker Refractories Co., Pittsburgh.



H. A. GUMZ, recently named vice-president of Webster-Chicago Corp., Chicago.



ROBERT A. GRANEY, appointed assistant general superintendent of Inland Steel Co.'s Indiana Harbor Works, labor relations and training.



ADOLPH J. DEMATTEO, appointed chief engineer by the Watson-Stillman Co., Roselle, N. J.

SEND FOR

WILMOT CONVEYOR BULLETIN 502



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veyor parts: sprockets, traction wheels, flights, take-ups, shafting, bearings and trough in cast iron, ductile iron, carbon or chrome-manganese steel to fit the application. See why an increasing number of leading firms are cutting "down" time by depending on Wilmot for all conveyor replacement parts.

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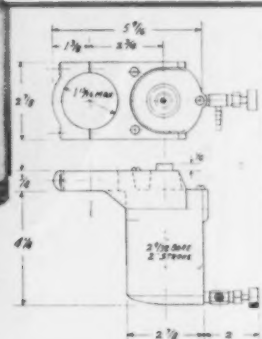
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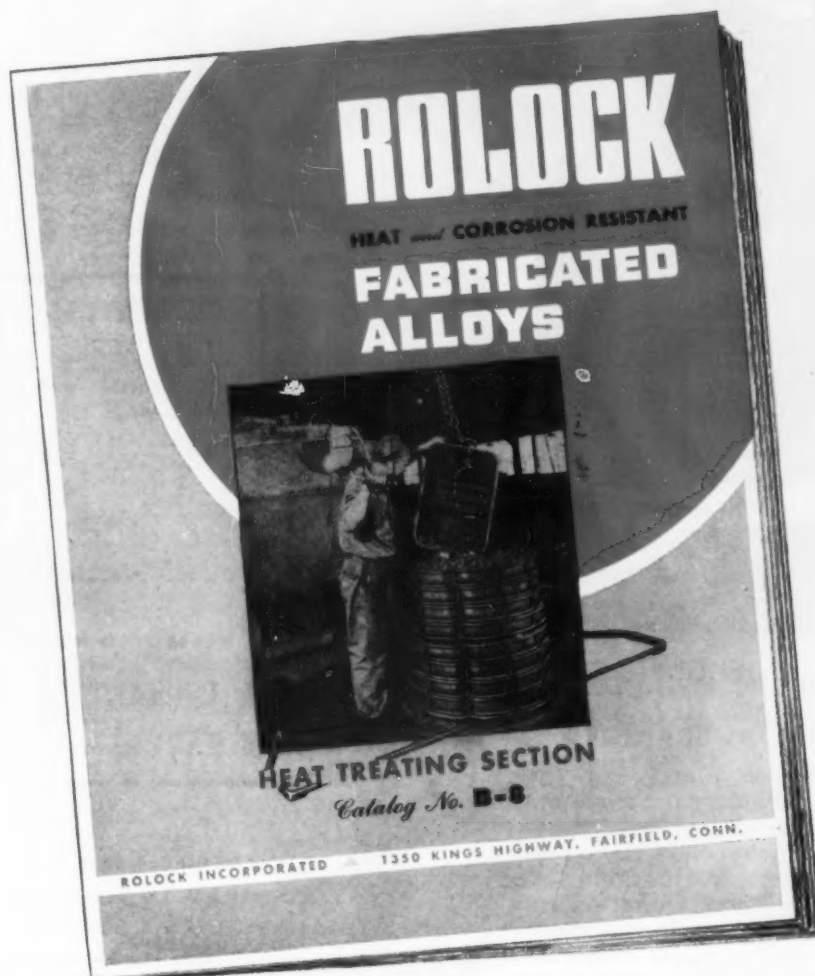
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Personnel

Continued

W. G. Burden and E. C. Schafer, named assistants to the general director of public relations for UNION PACIFIC RAILROAD, with headquarters in Omaha.

Lloyd A. Dunn, joined WYANDOTTE CHEMICALS CORP. Chicago district sales and service staff.

Robert J. Loskill, named manager of the sales training division, CATERPILLAR TRACTOR CO., Peoria, Ill. Thomas A. Glass, succeeds Mr. Loskill as assistant manager of the governmental division.

James Boyd, appointed as exploration manager for KENNECOTT COPPER CO. and Georges Ordenez was appointed as chief geologist.

R. Allan Hickman, appointed to the newly created position of director of market research for the DOBECKMUN CO., Cleveland.

Chelsea R. Phillips, named field engineer at Hibbing, Minn., by HEWITT-ROBINS INC. Mr. Phillips will set up and head the company's new office at Hibbing.

OBITUARIES

J. Phillips Cosgrove, executive vice-president of American Radiator & Standard Sanitary Corp. in New York, at the age of 54.

William H. Warren, 84, former president of the Fuller & Warren Stove Co., Troy, N. Y.

John Bernard McGee, 74, treasurer and a director of the Miami Copper Co., at New York.

Daniel J. Hilferty, 68, vice-president and chairman of the board of directors of the Lansdowne Steel & Iron Co.

S. Walter Platt, 67, president and founder of the Platt Steel & Supply Co., Inc., Pittsburgh.

W. J. Morgan, 67, originator of the process now used in the making of cast iron pipe and for many years affiliated with the American Cast Iron Pipe Co. research department in Birmingham.

Oscar A. Knight, 72, retired Detroit district manager, Grinding Machine Div., Norton Co.

The Industry View

for '52

expansion
replacement
volume
profits
shortages
controls



By Tom Campbell
Editor

To check current conditions in metalworking and to learn what its executives thought about the coming year, The Iron Age surveyed a cross section of the industry. Some surprising findings: Smaller firms are having less trouble getting materials than larger firms; the inventory picture is not as black as it has been painted; well over half are replacing uneconomical equipment on non-defense output.

WHEN men are not talking about their families they are talking about their business. In pullmans, in airplanes, in bars, in the office or on the street the favorite greeting is "How's business?"

Today the question is the same but it has a few new twists. Now it is, "How are inventories? What do you think of controls? Will your business be better next year? What about expansion?"

No one knows for sure the real answer. Anything predicted today is hardly more than a guess. Some are better than others; some are terrible. Usually, though, a man at least knows how he feels about things.

We could ask the experts. But they probably don't know any more, or as much as, the man

who is in the middle of it. Their opinions in the past 6 years have been nothing to write home about.

We thought we would like to get a cross-section opinion on some simple questions by asking the men who make the answers possible by what they do, don't do or what they think. Some people call this a survey. All we wanted was an answer to some questions about what to expect next year in the way of business and what was the matter with things now.

Not all the people we wrote to answered. Enough did to give us a fairly good picture of what metalworking executives are thinking about. In order to see if rumors about small and large business carried weight we divided the answers into those with 500 employees or less and

Q

1. Do you expect your business volume to increase in 1952?

2. If your volume is off in 1952 will material shortages cause it?

Plants with 500 or LESS WORKERS



said
YES

44%

said
NO

56%

said
YES

77%

said
NO

23%

OVER 500



44%

56%

71%

29%

ALL TOGETHER



44%

56%

75%

25%

Metalworking survey (continued)

those which employ more than 500 workers.

For those who want detailed data on number of inquiries sent out, etc., there is a tabulation at the end of this article. We did get a return of more than 26 pct—pretty good these days. The sample was good too—it was a cross-section of all metalworking plants which manufactured or fabricated products or parts from metals. Producers of metals were not queried.

On the question of "Will your business increase in 1952?" our men were about divided. Large and small plants had the same answer. About 44 pct said "yes" and 56 pct said "no."

The pessimists do not outweigh those who look for a bigger volume.

Of those who expected an increase the majority thought their volume would expand between 10 to 25 pct. The figure most often mentioned was 10 pct—a third looked for that much of a rise. About 19 pct looked for a 20 pct boost in output. Remember they were talking about their business—not the other fellow's.

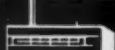
Asking about material shortages was like waving a red flag. Some answers were emphatic beyond saying "yes" or "no." On the question, "If your business will be off in 1952

Q

5. Are you replacing uneconomical equipment on non-defense production where possible?

6. Do you plan plant expansion in 1952?

Plants with 500 or LESS WORKERS



said
YES

53%

said
NO

47%

said
YES

20%

said
NO

80%

OVER 500



66%

34%

38%

62%

ALL TOGETHER



57%

43%

26%

74%

off
trial?
?

3. Will your net profits be UP... DOWN... or SAME?

said NO	said UP	said DOWN	said SAME
23%	10%	63%	27%
9%	8%	65%	27%
5%	9%	64%	27%

4. If controls were on military orders only, would you be better off on non-defense activity?

said YES	said NO
63%	37%
63%	37%
63%	37%



will it be due to material shortages?" there was no question of how metalworking heads felt. Those with 500 or less workers voted 77 pct "yes" and 23 pct "no." Larger plants said 71 pct "yes" and 29 pct "no."

If you wanted to "expert" on the answers to that question you could say that the larger plants were not having as much trouble with materials as the smaller ones. Answers to other questions did not bear this out, so it would be fair to say both groups thought about the same.

In these days you would think that if you

asked a man "Are you having serious trouble getting materials?" he would almost knock you over saying "Yes!" But that's not what they told us. Of the smaller firms answering, 61 pct said "yes" they were having troubles but 39 pct said "no trouble." There was a difference from this in the answers from plants with more than 500 workers. About 72 pct of them said "yes" they were having trouble; the other 28 pct were not.

We could say that the smaller plants were having less trouble than the larger firms in getting material. That's what they said to us

7. Are you having serious trouble getting materials or parts?

said YES	said NO
61%	39%
72%	28%
65%	35%

8. How about inventories measured against current output?

said OK	said SLIGHTLY UNBALANCED	said BADLY UNBALANCED
29%	53%	18%
18%	64%	18%
25%	57%	18%



and that is contrary to what Washington politicians say and contrary to rumors going around the country. Since no names were signed to our returns every man could tell the truth without hurting his chances of getting material.

Naturally, we wanted to know about inventories. There, we thought, would be a good place to find out how much trouble people were having. The government controls the size of inventories, so we asked "How are your inventories in relation to your production?" Again the smaller plants surprised us, because 29 pct said they were "OK," 53 pct said they were slightly unbalanced; only 18 pct said "badly unbalanced."

Larger firms were having a little more trouble with inventories because only 18 pct said they were "OK," 64 pct said they were slightly unbalanced, but only 18 pct of the larger firms said their inventories were badly unbalanced.

Such answers on inventories are a far cry from some of the whoppers and rumors being passed on. It was also enlightening to see that smaller plants had better balanced inventories than did larger plants. At least that's what they told us, and the figures are better than half guesses.

Even at its worst it looks like inventories are only slightly unbalanced and that as the amount of material increases a better production rate can be put into effect by both large and small plants.

No study would be complete without asking metalworking people "Are you replacing uneconomical equipment on nondefense output?" On that question, plants with 500 workers or less answered: 53 pct "yes" and 47 pct "no." Larger plants had a more definite answer because 66 pct of them said "yes" and 34 pct said "no." That means, we think, that the drive to cut costs by getting up-to-date equipment is under way in earnest; not even the defense program is stalling it.

It would be normal to ask about expansion in the next breath. Only 20 pct of the smaller firms plan expansion during 1952 with 80 pct deciding they are not going to expand this year. The larger firms had a stronger answer: 38 pct of them expected to expand while 62 pct said "no they weren't." The difference might have

been because some of the larger plants were expanding for defense.

As a little aside we asked the executives to tell us whether they would expand after the defense effort had reached its peak—if they did not intend to do it in 1952. Of those who answered, the smaller plants said 70 pct would and 30 pct would not. Of the larger firms answering this question, 66 pct said they would expand later and 34 pct said they would not expand. We expected this difference because more of the larger firms had said they would expand in 1952.

We also wanted to know how these metalworking leaders felt about controls. We found out. The question was "Do you think that if controls were on military items only, you would be better off on nondefense output?" Large and small plants had the same answers: 63 pct said they would be better off and 37 pct said no they would not be better off. It looks as if businessmen think that makers and users know more about distributing materials than does the government, at least on things other than military items.

We asked about profits. The smaller plants said that 10 pct would see higher net profits; 63 pct would see smaller profits, and 27 pct saw them about the same as 1951. The larger plants answered: 8 pct would see profits up; 65 pct saw them down; and 27 pct saw them about the same.

Interpreting these answers on a broad scale it looks as though: Companies are having trouble getting materials, but things are a little better than Washington reports; smaller firms when answering questionnaires do not get overly excited about what a job metal producing firms are doing for them in the way of supplies; and more important, inventories are not in as bad a shape as most people think.

It was good to know too that all firms are doing their best to buy up-to-date equipment to help them cut increased costs due to higher labor and material charges. It also looked like controls could go out the window soon, except for military items, as far as the majority of metalworking people are concerned.

At least you can stack your ideas up against those of people in your field who were patient and kind enough to help us out on these "questions of the day."

DETAILS ON SURVEY

Who was queried? By plant size and product, questionnaires were sent to a cross-section of the metalworking field. This included manufacturers and fabricators of machinery, metal products and parts. Mills, foundries and other metal producers were not queried.

How many answered? Of the 3400 questionnaires sent to top level executives 892 were returned—26 pct, considered high. The sample of returns compared favorably with the total number of small and large plants in the metalworking field. Some minor questions were not answered on all returns.

Time of survey—Most replies came in during the second week of November 1951. The pattern of returns coming in later was the same as for those received earlier.

Technical Trends— Ingenuity must overcome shortages in 1952



By D. I. Brown
Technical Editor

In 1952 the use of nodular iron will surpass most optimistic estimates. Shell molding will come out of hiding in 1952 and will revolutionize foundry practice and thinking. An exciting year is ahead for both hot and cold extrusion; shapes as well as pipe or tubing will be produced. Titanium cooled off at year's end, but it will be a hot subject all through 1952.

Because of greatly expanded research in all phases of metalworking it is impossible to even briefly describe all the important new developments of 1951. This summary therefore covers a selected group of developments believed important to various parts of industry.

Intelligent evaluation of some of the new materials, processes and practices was further complicated last year by government restriction of information declared "classified."

The foundry industry is in the throes of a revolution in basic foundry practice. Thin shell molding, often called Croning or C-Process, may well change the industry's entire technique, not only in production, but in the sales, promotion and end use of their product. Until late last year, this development was kept well under cover. Everybody allegedly had big secrets and nobody would talk for publication. In November the first step-by-step article on the C-Process appeared in these pages.¹

The development reported in this article was somewhat unexpected. Many experts had held that thin shell molding would first find wide application in the mass production of parts. To some extent they were right as Ford Motor is producing many parts with the process. However, Builders Iron Foundry, Providence, R. I., a job shop, has proven that the process can pay

off on smaller lots or orders, which opens up new possibilities.

Although the promoters or licensees of the process clammed up, the trade turned to its old, sometimes forgotten, fountains of information, the salesmen, and the suppliers, for facts not otherwise available. These messengers help break for publicity details on the single most important foundry development of many decades.²

There has been one authentic reason, however, for the reluctance of the industry to talk about thin shell molding. Until very recently they were not sure of the real or net savings in cost of manufacturing when using thin shell molds. Although thin shell molding uses 90 pct less sand per pattern, produces a smooth finish that minimizes machining, casts to precision tolerances and saves metal and alloy because of less gates, risers, sprues, etc., there is still more than one joker in the deck.

The change-over from sand casting to shell molding is costly. It requires new equipment, vastly modified handling devices, and, above all, retooling. The resin which is now used to bond the sand costs 35¢ per lb. The sand-resin mix cannot be reused—at least not in a way that would permit major salvage, since the only salvageable component after use of a mold is the sand, which



PATTERN PLATE for thin shell mold is inverted over bucket which contains resin and sand mixture. The heated plate is air clamped to the bucket and the bucket then turns 180° to deposit sand on pattern.

could theoretically be reclaimed by one of the standard reclaiming techniques.

To exploit the full savings possible when using thin shell molds, the following two things will be needed. (1) much cheaper and simpler methods of pattern construction (2) cheaper bonding agents must be developed. Even without these necessary steps, the process is finding wide application, but a good cost study on each and every part is necessary today to determine where and when to switch to thin shell molding.

Molding machines capable of making one mold per pattern per minute are desirable. The industry first investigated multiple-stage machines for this purpose.³ Right now they have dropped multiple-stage machines and are installing and studying single-stage molding machines.

In 1952 thin shell molding will establish itself in its proper position in the foundry industry. A new bonding agent not necessarily a synthetic resin will be tried this year. Through the use of thin shell molds, many parts now made of steel will be switched back to less critical materials like malleable or cast iron. Ductile or nodular iron parts will be dovetailed into the process also. It is likely that thin shell castings will even replace heavy gage sheet stampings if the sheet steel supply picture remains tight.

Another development important to foundries is ductile or nodular iron which found increasing wide use last year. Best estimates are that

50,000 tons were melted last year compared to 20,000 tons in 1950. Basic research on heat treatment shows that many added applications will be made because of improved properties through heat treatment. The fatigue strength and notch toughness of this metal in the as-cast and heat-treated condition were also studied.⁴

Late last year the results of one of the first investigations in the rolling of ductile iron were published.⁵ Although the metal has been successfully rolled it has only been rolled experimentally and no commercial rolling of the metal is yet being done. It appears, however, that some types of ductile iron will be available in wrought products in the near future. If this practice can be extended to enough products, ductile iron will have answered its future as one of our major engineering materials.

The history of ductile iron has been turbulent. The British produced the metal using cerium as the nodulizing agent. Most of the tonnage in the country has been made under the International Nickel Co. patents which employ a nickel-magnesium alloy. Last year the British admitted that the nickel-magnesium practice was more reliable and cheaper.

In 1952 more excitement may occur as other nodulizing agents are announced. At least one new method of making ductile iron which does not use nickel, magnesium, cerium or any strategic metal will be announced. So much of the success of producing satisfactory ductile iron parts is tied up with foundry practice, personnel training, etc., that the relative merits of different additive agents are not easily defined. It is not likely that arguments over one addition versus the other will develop again. The end result will be more tonnage of ductile iron produced as experience is gained by the industry with most producers sticking to the old method.

Titanium has cooled off

Titanium is not as hot today as it was a year ago. Research on the various alloys, testing of prototypes in aircraft and ordnance applications have been a sobering influence. New production facilities have started operation and others are under way. As yet the Kroll process is the only commercial method of producing the alloy. Over 500 net tons of metal were produced last year by this process. Research programs sponsored both by government and private industry continue to search for a better production method. Many different research programs involve the use of electrolytic methods. Some of these processes may eventually be successful but it is not believed that 1952 will see their perfection.

Last year the high temperature properties of commercially pure titanium were explored.⁶ The same type of testing will soon be completed

on the major alloy systems now in production. As yet there are no real commercial applications of the metal but some test programs indicate there might soon be some. So far, titanium has not proved itself to be a high temperature material. Even the alloys of titanium do not show promise for applications over 800°F. Some of the alloys, such as Rc 130B, show three times better strength than the commercially pure metal at 800°F, however.

A continuous recycling step for the Kroll method of producing the metal will be started this year at the new Titanium Metals Corp. plant in Henderson, Nevada. This practice will eventually reduce production costs, as both magnesium and chlorine are recovered. When enough tonnage of the metal is made using the recycling method, the present titanium price may be cut. So far the price of the metal has not deterred its use in test and research programs. Any widespread commercial applications, however, would necessitate lower prices, with aircraft a possible exception.

Search for refractories continues

The year ended without a solution to a refractory material capable of holding molten titanium. Graphite and water-cooled copper crucibles are used at present. The carbon pickup from graphite crucibles is detrimental to the ductility and weldability of the metal. Molten titanium will fast digest all ordinary refractory materials. Toward the year's end researchers came up with the idea that a fluoride compound of some type might do the job since fluorine and other halogens are not soluble in titanium.

The lack of proper refractories is one of the factors which to date has prevented the manufacture of titanium castings. The industry made no appreciable progress on this program last year either.

Last year saw the first full season of mining in the new ilmenite mines of Canada.⁷ With a plentiful domestic source of high-grade ore, the titanium industry can grow at the expense of some other metals, the major ores of which lie beyond our shores.

Larger ingots of titanium are now available. Ingots of 1000-lb are now standard and the producers can pour 1500-lb ingots when specified. Ingots up to 2000 lb will be available this year.

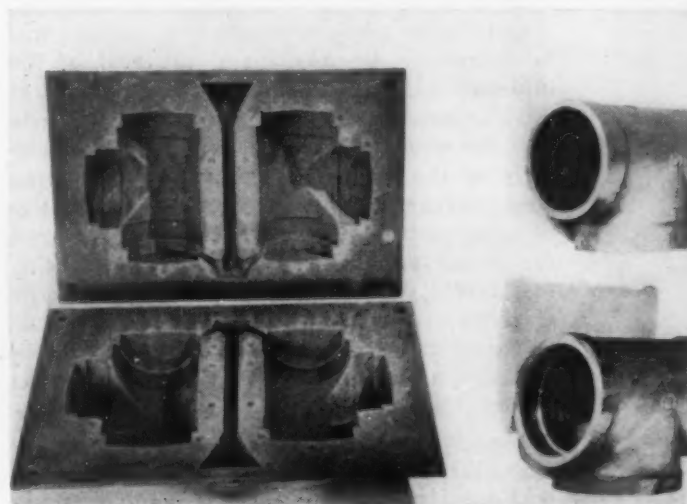
Scrap titanium is being mixed with sponge for production of some types of titanium in most melt shops. Scrap metallic titanium is also being used by a few steel companies to replace ferrotitanium in making 321 type stainless steel. Yields of titanium scrap in the electric furnace steel heats have been surprisingly good.

In 1952 the total tonnage of titanium metal production will hit a new high. Present estimates are that as much as 4000 net tons of metal may be made this year. The price on some products may be lowered and by second quarter forged blades and wheels for jet engine compressors will probably be accepted as standard materials. This might well be the first commercial application of the metal. The Army and Navy will undoubtedly come to a decision on bolt and nut applications which they have under study.

Conservation of alloys received wide attention last year. This year the real pressure will be applied unless the international situation changes radically. The alloy situation is cloudy. It is beclouded partially because industry has lost its only good gage of measurement—a free market. When prices are frozen and supplies allocated, scarcity is not reflected in price, which is the only authentic barometer of supply that industry fully understands. Industry is not generally told how much of the various metals is in stockpile. They can't believe we are as short of molybdenum and nickel as Washington claims we are. They suspect that the officials are calling wolf in cases, but they aren't sure. Until they are sure, they move only under duress and the best example of this fact is boron steel.

Although boron steels were widely publicized in these pages⁸ and elsewhere, their actual use tonnage-wise has been disappointing. Some users of alloy steels are lukewarm about using the new steels and have taken the position they won't use them until they have to. In cases they complain that they can't buy the new grades but the reason has usually been that they won't order sufficient quantity for the mills to produce economically.

Although NPA has in cases been forcing the



CRONING PROCESS, 4 in. tee couplings cast to tolerances of 0.003 to 0.004 in. per inch. Thin shell molds for these castings are shown at left.

Record in technical development (continued)

switch to lean alloys, they haven't yet really used the club. This year will undoubtedly see much more strict policing of melt schedules by NPA and industry's full acceptance of the facts of life.

Important as the conservation of alloy in constructional grades has been, it's peanuts to that which must be done on jet and high temperature alloys. The huge amounts of cobalt, columbium, nickel, chromium, molybdenum and tungsten needed to make present alloys shown in the table in Sect. 5 of this issue are just not available. Shortages of cobalt were holding up jet alloy production way back in midsummer. One of the popular jet blade alloys, S816 contains about 40 pct Co. This alloy, which in cases replaced cast Vitallium blades which contain about 60 pct Co, is not holding up well in jet service. Even if S816 alloy were performing well, we don't have the metals to continue to make it in quantity.

Cooled jet parts are coming

The Air Force has announced new designs of jets which employ air cooling to help hold down operating temperatures of some of the critical parts.⁹ This will help but not solve the problem. Liquid cooling is the next step but it will not be perfected and approved this year. In the meantime, our jet program hangs in the balance. If the planned production schedules on engines were to suddenly become a fact, *the kingdom could well be lost for want of high temperature alloys.*

New materials such as cermets and ceramic coatings look promising^{10, 11} but are still in semi-laboratory stages of development. History may well record the fact that we didn't need jets anyway because missiles took over where jets left off, but right now this premise is of little comfort.

In 1952 the whole strategic alloy picture will be influenced by Korea and the rest of the international picture. However, no amount of olive branches, armistice or peace moves should dull the efforts of alloy conservation, particularly in the alloy-rich jet metals. The boron steel program will continue but the possibilities of using carbon steel plus boron, 14BXX series, for carburizing will not mature. Users will go to straight carbon steel or the regular boron steel alloys containing nickel, or molybdenum or chromium or all three but the 14BXX series will die a natural death in the carburizing grades.

The continuous casting of many metals surged ahead last year. Although the nonferrous metals have been continuously cast for years, considerable progress was reported.^{13, 14, 15, 16, 17} Most significant in this field last year was the successful casting of carbon and stainless steel at

the Watervliet, N. Y., plant of Allegheny Ludlum Steel Corp.¹⁸

Noteworthy in continuous casting of aluminum last year in this country was the installation of the Italian Properzi machine at Nichols Wire and Aluminum Co., Davenport, Iowa. This machine continuously casts a triangular section which is fed directly into a 13-stand continuous rod mill. These redraw rods are coiled and are then ready to be put through the wire drawing machines. To date, the bulk of the tonnage has been commercial purity aluminum. A new machine has just been delivered from Italy to Nichols Wire, which will be capable of casting and rolling most of the types of aluminum alloys used by industry.

Three other American companies have recently purchased Properzi casting machines and rolling mills to produce aluminum wire rod. There are 12 such installations in Europe.



CONTINUOUS CASTING OF STEEL at the Watervliet plant of Allegheny Ludlum Steel Corp. Metal is flowing from holding ladle into top of the reciprocating mold of the Rossi continuous casting machine.

The interest in continuous casting of steel is still running high but big producers are dragging their feet. The trade is watching the Rossi machine at Watervliet very closely. For ultimate exploitation of the continuous cast stainless steel process a companion extrusion step will be added. The huge savings in metal possible through continuous casting and extrusion are particularly attractive in stainless steel-making. The as-cast surface of the 3x15 in. stainless slabs and carbon steel rounds up to 9 in. have been good.

In 1952 the small steelmakers selling wire products may enter the continuous steel casting picture. The present aluminum rod casting machines may also be used to cast experimentally sections for copper redraw rod before the year is over.

The use of rare earths in both ferrous and nonferrous metals increased sharply last year. The rare earths are usually introduced into the molten metal as Misch metal or Lan-cer-amp. These agents consist mostly of cerium and lanthanum with smaller percentages of neodymium, praseodymium or didymium, and costs \$4.50 per lb. Table I shows the major difference in composition or ordinary Misch metal and #1 Lan-cer-amp alloy. The usual practice in protecting Misch metal from oxidation prior to use is to keep it immersed in oil. The Lan-cer-amp alloy is coated with a protective vinyl paint to preclude oxidation and the absorption of hydrogen and nitrogen gases.

The rare earths were investigated long ago by the Germans for certain magnesium alloys. Usually zirconium is the second alloy also used with rare earths in magnesium practice. Dow Chemical Co. is producing rare earth magnesium in casting and extrusion alloys. The major cast alloys are listed in Table II. The properties of cast bars of these alloys appear in Table III. These data are taken from a paper presented before the Magnesium Assn. last November 15 by J. C. McDonald, Dow Chemical Co.

Howard Foundry Co. of Chicago is also producing rare earth magnesium castings in an alloy called ZRE-1. This particular magnesium alloy was developed by Magnesium Elektron Ltd., Manchester, England, and Howard Foundry started production under British license last year.

The status of rare earths in steel applications is befuddled. Although an excellent paper was presented by C. B. Post et al^{18, 19} of Carpenter Steel Co. late in the year on stainless steel rare earth applications, the full story has been held up because of government and private enterprise classification of such information.

Carpenter Steel Co. was issued a patent about the middle of last year on their application of rare earths to stainless. To some observers familiar with the long history of rare earths, this action was surprising. Nevertheless, Carpenter's work and activity has added much to the technology of rare earth applica-

tions and stands out as one of the major developments in this field for 1951.

Through the use of 2 to 6 lb of rare earths per ton of steel, Carpenter Steel Co. has made commercially available for the first time certain stainless grades which could not be rolled before. Rare earths are effective in improving the hot workability of austenitic or partially austenitic stainless grades containing 4 to 70 pct nickel and 10 to 60 pct chromium, molybdenum and/or tungsten.

However, the unpublished results of rare-earth application on other ferrous metals is even more exciting. The classification of rare earth developments in ordnance and other military applications can be considered unfortunate. Many believe that any method which can save strategic metal, permit better ingot yield, increase impact strength by as much as 50 pct, merits the widest dissemination.

In 1952 even wider use of rare earths will be put into everyday practice. The old Misch metal practice will be discarded and some of the

TABLE I
ANALYSIS OF RARE EARTH ADDITIONS

	Cerium, pct	Lanthanum, pct	Didymium, pct	Iron & Unreduced Salts, pct
Misch metal	80	20 to 22	18 to 18	Up to 6
Lan-cer-amp	45 to 55	20 min	20 to 24	Less than 1

TABLE II
RARE EARTH MAGNESIUM ALLOY
Composition and heat treatment

Designation	Alloy		Solution Heat Treatment		Precipitation Heat Treatment	
	Pct Zr	Pct Other	Temp.—°F	Time—hr	Temp.—°F	Time—hr
EK30A-T8	0.25	3MM ¹	1000	18	400	18
EK30A-T8	0.25	3MM ¹	1000	18	400	18
EK31A-T8	0.55	3MM ¹	1000	18	400	18
EK31A-T8	0.55	3MM ¹	1000	18	400	18
EZ33A-T8	0.7	3MM ¹ +3Zn	1000	18	300	12
EK31D-T8	0.55	2D ²	1000	18	400	18
EK31A-T8	0.7	3Th	1000	2	400	18

¹ MM—Misch metal; Co. La. Nd. Pr.

² D—Didymium; misch metal minus Ca and La.

TABLE III
PROPERTIES OF RARE EARTH Mg ALLOYS
Separately Cast Test Bars

Alloy	70°F			400°F				600°F			
	T.S. 1000 psi	Y.S. 1000 psi	Pct Elongation	T.S. 1000 psi	Y.S. 1000 psi	Pct Elongation	Stress for 0.2 pct Total Extension in 100 hr 1000 psi	T.S. 1000 psi	Y.S. 1000 psi	Pct Elongation	Stress for 0.2 pct Total Extension in 100 hr 1000 psi
EK30A-T8	20	16	0.5	20	12	10	7.4	10	7	80	1.6
EK30A-T8	20	16	3	20	14	10	7.2	12	7	80	1.6
EK31A-T8	22	17	2	20	13	20	7.7	12	7	80	1.3
EK31A-T8	20	16	4	21	10	10	8.0	13	9	70	1.6
EZ33A-T8	22	16	3	21	10	21	7.5	12	8	80	1.4
EK31D-T8	20	21	7	27	20	10	8.0	10	13	81	1.3
EK31A-T8	20	16	4	24	14	21	11.2	10	12	10	3.1

present secrets will be declassified. The trade will find rare earths are not a panacea to all their tough problems and will only use them where the added cost per ton of steel can be actually justified.

Steelmaking practice last year did not see too many startling developments. But former new methods were perfected, altered or discarded. Oxygen, carbon refractories, pressure top blowing, and all basic openhearth furnaces assumed their logical position in the industry. Jet tapping of openhearths with the shaped charge was a small but exciting development.²¹

One of the oldest yet ever haunting problems of iron and steel melters, sulfur elimination, received plenty of attention—behind the scenes. Steelmakers have been faced with continually rising sulfur contents in most of their raw materials, and even some of their fuels.

CaC₂ used to desulfurize

This, on top of the fact that manganese per ton of steel used today is much too high compared to availability of this essential metal particularly in wartime, piled insult on injury. Experiments in desulfurizing molten iron with calcium carbide were pushed beyond pilot plant tests despite the fact that this method is expensive. Calcium carbide under inert gas pressure was also used experimentally to desulfurize acid electric furnace steel.

The French Perrin process was pulled out, dusted off and given another trial in some steel plants. This process necessitates the melt down of a special slag in a separate furnace which is then employed in the steel ladle to desulfurize. The slag is roughly a 50-50 compound of calcium aluminate.

Sulfur reduction a-la-Perrin is fast but also is expensive. Tap sulfurs of 0.030 S are easily reduced to 0.015 or lower by this simple treatment but at the year's end the steelmakers were withholding final judgment.

Exothermic alloys find wide use

One sulfur-bedeveled melt shop superintendent even ran brushed burnt lime through a BRI gun under nitrogen gas pressure into the steel bath—the results of which pleasantly surprised him but startled others who point out that the gun was never meant for such purposes.

When the tar smoke finally cleared away, the industry found the new substitute mold coatings would work but again it cost more.²² The best mold coating material is still not finalized and experiments ran from the ridiculous to the sub lime.

Use of exothermic alloys in steel melting shops is not a new development but the practice became very popular last year.²³ Exothermic ferrochromium permits the steel melter much

closer control of the actual chromium analysis in the heat. Exothermic alloys are used in the ladle. A melter can aim for a particular part of the chromium range; high, low or in the middle and be assured he will hit that part of the specification.

New exothermic alloys were announced last year and more are under development or study. Exothermic ferrosilicon and manganese are also finding wider application.

These silicon alloys are not only used as a source of silicon in the metal but are often used as slag conditioners in basic openhearth practice.

Exothermic ferromanganese is especially useful in steel grades containing over 0.70 pct Mn. Recoveries of 90 pct efficiency on exothermic ferromanganese ladle additions are standard; in cases up to 95 pct recovery have been recorded.

Another exothermic ferroalloy, Carb-X, has been used to advantage in certain cast iron applications. This agent promotes a microstructure with a high percentage of ferrite and a low amount of combined carbon. Castings like molds and stools made with Carb-X additions have demonstrated longer service life.

Mn from O.H. slags next year

In 1952 the industry may be driven to adopting one of the extra operational methods of sulfur reduction. The scrap picture will clear, but not until some now untapped sources are opened up to increase the tonnage moving. Basic research of best methods of manganese recovery from openhearth slags completed late last year will spur the industry to add new large facilities for salvage of this metal.²⁴ Manganese consumption per ton of steel will show little decrease, however.

Hot and cold extrusion of steel, both destined to play an important role in our metal-working industries, continued to expand last year. Jones & Laughlin Steel Corp. became the fifth licensee of the Sejournet hot extrusion process which features molten glass as a lubricant.

Although deliveries of equipment to the other licensees have been somewhat behind schedule, Babcock and Wilcox Tube Co. started operations last month. At least two more companies will have the French hot extrusion method in production by mid-1952. Allegheny Ludlum plans to start their operation in February at Watervliet, N. Y. Stainless steel rounds made by their continuous casting process will be hot extruded as well as other stainless alloys of the high temperature type.

Cold extrusion, of salient importance to the production of certain ordnance material, boomed along at high speed. Mullins Mfg. Co., Salem, O., erected a new cold extrusion plant at Warren, O., for shell production and offered

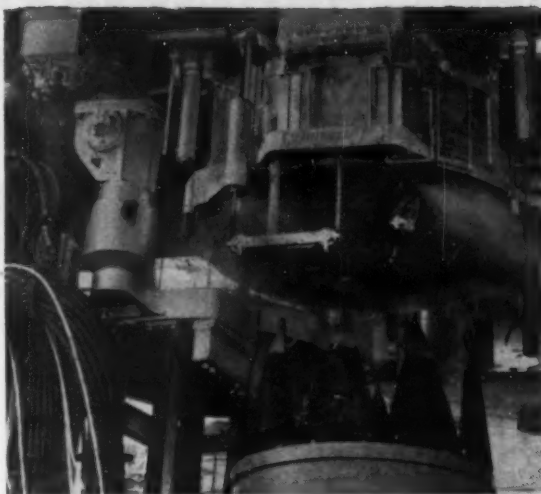
to sell under license their Koldflo process to the trade.²⁵

Late in the year, H. J. Heintz Co., Philadelphia, formally turned their new extrusion plant over to the Navy, who will use it as a pilot production plant for development and study of many military items. Heintz Co. has made no effort to license a cold extrusion method. The Heintz plant features mostly German-made extrusion presses, many of which are mechanical presses.

There are at least 12 distinct schools of thought in the dozen or more companies now working on cold extruded products as to best lubricants, types of presses and sequence of working annealing, etc. The opinions on lubricants run from plain Bonderizing with no special drawing compound all the way to the highly specialized compounds used in the Foscoat Process which employs zinc phosphate.^{26, 27} In between are other opinions and practices offering all possible combinations of the two major beliefs. It appears there could be as many cold extrusion techniques developed as there are producers of cold extrusion products, if it were not for the very active excellent research and promotion of the special lubricant makers.

The question of which type of extrusion press, mechanical or hydraulic, will be compromised this year. A combination hydraulic and mechanical press designed to use the best features of both types is now being built. It is believed this press will satisfactorily reconcile both sides and will prove to be the best cold extrusion press yet designed.

The advantages of cold extrusion of certain types of products has stood the test of time and experience well. What many believed were



GROWTH IN SIZE and efficiency of electric furnaces for steelmaking is an important trend of the times. By 1953, U. S. electric furnace steel capacity will be about 9 million tons.

merely claims are now generally accepted as fact. Savings in metal, precision tolerances of parts, better than machined surfaces, and high mechanical properties without heat treatment still hold true.

In 1952 both hot and cold extrusion will win acceptance as standard production methods. Extrusion techniques will improve and production rates and die life will increase. The adherents of special lubricants for cold extrusion will probably have more rooters on their side before the year is over as they are tooled up for excellent service to the trade, are well staffed and are diligently continuing their research, not only in cold extrusion but all types of cold working.

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STEEL SPECIFICATIONS

This brief analysis of various civilian, federal and military specifications is designed to aid defense contractors. Generally, it lists the composition and form of the material referred to in these specifications and notes whether or not it is similar to a better known standard specification.

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AERONAUTICAL MATERIAL SPECIFICATIONS

AMS No.

5010C-
0.13 max. C, 0.7-1.0 Mn, 0.07-0.12 P, 0.16-0.23 S; cold-finished screw stock-bars. Similar to SAE 1112 & QQ-S-671 & AISI B1112.

5022E-
0.14-0.20 C, 1-1.3 Mn, 0.08-0.13 S; bars billets, forgings, tubing—free cutting. Similar to SAE 1117 & AISI C1117.

5024C-
0.32-0.39 C, 1.35-1.65 Mn, 0.08-0.13 S; bars, billets, forgings, tubing—free cutting. Similar to SAE 1137 & AISI C1137.

5030A-
0.06 max. C, 0.25 max. Mn, 0.08 max. Si; wire, welding. Similar to MIL-R-5632, CL1.

5032A-
0.18-0.23 C, 0.3-0.6 Mn, 0.04 max. P; wire, safety, annealed. Similar to SAE 1020 & QQ-W-461 & AISI C1020.

5033-
0.05-0.20 C, 0.3-0.6 Mn, 0.045 max. P; wire, Zn coated—annealed. Similar to AN-W-22 & AN-QQ-W-435.

5036B-
0.10 max. C, 0.25-0.50 Mn, 0.04 max. P, 0.05 max. S; sheet & strip, Al coated—cold rolled. Similar to AISI C1008.

5040E-
0.15 max. C, 0.25-0.60 Mn, 0.04 max. P, 0.05 max. S; sheet, strip, deep forming—cold rolled. Similar to SAE 1010 & QQ-S-636 Cond. 5 & AISI C1010.

5041-
0.08 max. C, 0.2-0.4 Mn, 0.04 max. P, 0.05 max. S; sheet, strip, deep drawing—cold rolled. Similar to SAE 1006 & AISI C1006.

5042E-
0.15 max. C, 0.25-0.6 Mn, 0.04 max. P, 0.05 max. S; sheet, strip, forming—cold rolled. Similar to SAE 1010 & QQ-S-636, Cond. 4 & AISI C1010.

5044C-
0.15 max. C, 0.25-0.60 Mn, 0.04 max. P, 0.05 max. S; sheet, strip, ½ hard temper—cold rolled. Similar to SAE 1010 & QQ-S-636, Cond. 2 & AISI C1010.

5045B-
0.25 max. C, 0.25-0.60 Mn, 0.04 max. P, 0.05 max. S; sheet, strip, hard temper—cold rolled. Similar to SAE 1020 & QQ-S-636, Cond. 1 & AISI C1020.

5050D-
0.08-0.13 C, 0.30-0.60 Mn, 0.04 max. P, 0.05 max. S; tubing, seamless, annealed. Similar to SAE 1010 & AISI C1010.

5053A-
0.08-0.13 C, 0.3-0.6 Mn, 0.04 max. P, 0.05 max. S; tubing, welded, annealed. Similar to SAE 1010 & AISI C1012.

5060B-
0.13-0.18 C, 0.3-0.6 Mn, 0.04 max. P.

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DEFENSE CONTROLS GUIDE

This special section digests principal material control orders affecting the metalworking industry, lists CMP regulations and NPA forms, revised to Dec. 15, 1951. Also included in a special insert is a list of controls officials with their room and telephone numbers. And there are four pages listing principal metal products bought by the armed forces and locations of the buying offices.

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T			Controlled materials, distribution to	M-89	Priorities assistance to technical and scientific laboratories	M-71	Zinc: Distribution of	M-37

National Production Authority Material "M" Orders

Order No.	Title and Branch	Issued	Additions— Modifications	Purpose	Related NPA Forms	Branch
M-1	Iron & Steel	7-6-51	Revised	Sets up rules for placing, accepting, and scheduling orders for steel. Requires alloy steel set-asides on planned production basis.	NPAF-60 NPAF-100 NPAF-102	Iron & Steel Div.
		8-2-51	Amendment	Increases percentages of iron and steel products to be reserved for rated orders.		
		1-17-51	Supplement 1	Allots steel for freight cars.		
		11-15-50	Supplement 2	Allots steel for 12 ore ships.		
		12-15-50	Supplement 3	Allots steel for Canadian freight cars.		
		2-16-51	Supplement 4	Directives for shipbuilding steel.		
		12-11-51	Direction 3, Amended	Steel producers may not accept more than 90 pct of rated orders.		
		9-21-51	Direction 4, Amended	Brings consumer durable goods under full CMP.		
M-4A	Construction	8-20-51	Revised	Construction requiring more than specified quantities of controlled materials cannot be begun. Limits on construction and building materials.	CMP-4C NPAF-24A	Constructions Controls Div.
M-5	Rated Orders for Aluminum	7-6-51	Revised	Aluminum forms must conform to CMP Reg. 1. Brings authorized controlled materials under CMP.		Aluminum & Magnesium Div.
		12-11-51	Direction 1, Amended	Aluminum producers may accept limited orders until 15 days prior to expiration of lead times, but no more than 85 pct of production directive.		
		9-21-51	Direction 2, Amended	Brings consumer durable goods and passenger automobiles under full CMP.		
		10-5-51	Direction 3	Prohibits delivery after Oct. 1, 1951 of aluminum controlled materials except on ACM orders or NPA authorization.		
M-6	Steel Distributors	12-15-50	Revised	Gives rules on getting steel supplies. Producers must allot steel for distributors on average monthly purchase basis. Extends DO rated orders.		Iron & Steel Div.
		3-15-51	Amendment	Steel producers must allot monthly at least 85 pct of warehouse's base tonnage of carbon steel products.	NPAF-55 (R)	
		6-15-51	Direction 1	Iron and steel producers must continue allotments on 85 pct basis; defines term "DO rated orders."		
		8-2-51	Direction 2	Gives percentages of stainless steel products and alloy steels iron or steel producers must ship to distributors.		
		8-24-51	Direction 3, Revised	Steel producers must allot certain steel products to distributors in flood areas.		

Material "M" orders (continued)

Order No.	Title and Branch	Issued	Additions— Modifications	Purpose	Related NPA Forms	Branch
M-6A	Steel Distributors	10-5-51		Requires steel producers to ship a minimum of 100 pct of average monthly base period tonnage to warehouses after Jan. 1, 1952.		Iron & Steel Div.
	Earmarked Stocks—Aircraft Quality Alloy Steel Products.	10-26-51	Schedule 1	Requires steel producers to make monthly shipments of aircraft quality alloy steel products.		
M-8	Tin	7-26-51	Revised	Sets restrictions on manufacture, processing, and construction of pig and secondary tin and tin-bearing products; pig tin may not be privately imported.	NPAF-7 (R) NPAF-8 (R)	Tin, Lead, & Zinc Div.
		9-21-51	Amendment 1	Extends limitations to succeeding calendar quarters		
M-9	Distribution of Zinc	7-5-51 11-23-51	Revised Amendment 1	Brings slab zinc under allocation Reduces the amount of slab zinc which can be purchased without an allocation certificate.	NPAF-110	Tin, Lead, & Zinc Div.
M-11	Copper & Copper-base Alloys	7-1-51	Revised	Sets up rules on controlled-material orders and rated orders for copper and copper-base alloys.		Copper Div.
		12-11-51	Direction 2, Revised	Copper producers may accept orders up to 15 days before expiration of lead times without regard to receipt date; producers may not accept orders beyond 85 pct of authorized production.		
		9-21-51	Direction 3, Revised	Brings consumer durable goods and automobiles under full CMP		
		8-31-51	Direction 4	Producers of copper controlled materials may fill only ACM orders		
M-15	Use of Zinc	6-15-51	Revised	Limits use of Special High Grade Zinc to 70 pct of average quarterly use, and other zinc to 80 pct.		Tin, Lead, & Zinc Div.
M-16	Distribution of Copper Raw Materials	7-13-51 11-19-51	Revised	Gives rules for acceptance, delivery, and distribution of copper raw materials. Tells who can get materials without NPA authorization. Permits authorized copper buyers to purchase in advance of monthly CMP allocations.		Copper Div.
M-17	Components or Parts	3-23-51	Revised	Provides ceiling limits for required acceptance of rated orders	NPAF-63 (R)	Consumer Durable Goods Div.
M-19	Cadmium	7-30-51	Revised	Controls deliveries of cadmium. Gives purposes for which it may be produced.		Tin, Lead, & Zinc Div.
M-20	Iron & Steel Scrap	5-28-51	Revised	Limits inventory for iron and steel scrap	NPAF-32 (R) NPAF-32 (A) NPAF-33 (R) NPAF-33 (A)	Iron & Steel Div.
M-22	Aluminum	9-11-51	Revised	Sets up regulations on distribution and use of aluminum scrap		Aluminum & Magnesium Div.
M-24	Tin Plate & Terneplate	4-3-51	Revised	Describes permitted and optional uses and restrictions on manufacturers.		Aluminum & Magnesium Div.

M-25 (continued)	Cans	8-23-51 Revised	Restricts acceptance, delivery, and use of cans. Sets patterns of can production and use.	NPAF-38	Containers & Packaging Div.
		10-8-51 Amendment 1	Clarifies restrictions on amount of cans that may be used for packing.		
		5-1-51 Direction 1, Revised	Sets quotas for second and third quarters 1951		
M-26	Packaging Closures	4-6-51 Revised	Limits use of tin plate and aluminum packaging enclosures	NPAF-50	Containers & Packaging Div.
		6-7-51 Amendment	New wording of above order	NPAF-50	
		5-4-51 Interpretation 1	Packers must include aluminum lids and other aluminum sealing devices in inventory.		
M-27	Collapsible Tubes	1-27-51	Sets up regulations on collapsible tubes		Containers & Packaging Div.
M-31	Chemicals (Chlorine)	1-23-51	Gives rules for placing, accepting, and scheduling rated orders for chlorine.		Chemical Div.
M-37	Zinc Scrap—Toll Agreements	2-14-51	Deliveries of zinc scrap for processing must have NPA approval. Sets up regulations on slab zinc and zinc dust.		Tin, Lead, & Zinc Div.
M-38	Lead	5-28-51 Revised	Nonproducers may not use more than 100 pct of average monthly consumption of pig lead. Toll agreements must be approved by NPA. Primary refiners must reserve 5 pct of monthly pig lead production. Rules on sales and acceptances.		Tin, Lead, & Zinc Div.
		7-26-51 Amendment	Revises sections of above		
M-39	Antimony	2-16-51	Limits inventories of antimony and materials containing antimony; controls scrap deliveries to dealers.		Tin, Lead, & Zinc Div.
M-41	Metal Working Machines—Delivery.	11-8-51 Revised	Sets up regulations on delivery of metal-working machines.	NPAF-62 (R)	General Industrial Equipment Div.
		12-3-51 Amendment 1	Forbids delivery of machine tools on unrated orders		
M-41A	Metalworking Machines—Limitations of Applications for Ratings.	11-8-51	Limits priority ratings for machine tools	NPAF-62 (R)	General Industrial Equipment Div.
M-42	Insect Wire Screening	3-2-51	Sets up regulations for placing and accepting rated orders		Building Materials Div.
M-43	Construction Machinery—Distribution.	3-2-51	Gives rules for placing, accepting, and scheduling rated orders		Construction Machinery Div.
M-44	Power Equipment—Production and Delivery.	10-4-51 Revised	Manufacturers of heavy power equipment must file with NPA monthly reports or orders and production and delivery schedules. Brings maintenance, production, and delivery under NPA.	NPAF-31 (R)	Electrical Equip. Div.
M-45	Allocation of Chemicals & Allied Products.	3-16-51	Sets up system for allocation of scarce chemicals	NPAF-45 NPAF-46 NPAF-48A NPAF-47 NPAF-47A	Chemical Div.

Material "M" orders (continued)

Order No.	Title and Branch	Issued	Additions— Modifications	Purpose	Related NPA Forms	Branch
M-46	Priorities Assistance for the Petroleum & Gas Industries in the United States and Canada.	6-1-51	Revised	Petroleum and gas operators may get priority assistance in obtaining materials.		Petroleum Admin. for Defense.
		10-15-51	Direction 1	Excludes shipments of oil country tubular goods from CMP Reg. 1		
M-46A	Priority Assistance for Foreign Petroleum Operations.	9-5-51	Revised	Reduces number of allotment symbols and DO ratings; reclassifies items.		Petroleum Admin. for Defense.
		10-15-51	Direction 1	Excludes shipments of oil country tubular goods from CMP Reg. 1		
M-46B	Construction Limitations for the Petroleum & Gas Industries.	6-1-51		Petroleum and gas industries no longer under NPA order M-4; construction now under M-46B.		Petroleum Admin. for Defense.
M-47A	Use of Iron and Steel, Copper and Aluminum in Certain Durable Goods and Related Products.	10-11-51	Revised	Substantially replaced by M-47B. Continues ornamental and decorative prohibitions on copper and aluminum.		Production Evaluation Div.
		7-20-51	Direction 1	Advises on preparing Form CMP-4B		
M-47B	Use of Controlled Materials in Certain Consumer Durable Goods.	9-28-51		CMP allotments are to be used to make limited products. Prohibits ornamental use of copper in consumer durable goods.		Consumer Durable Goods.
M-48	Bismuth	8-10-51	Revised	Regulates use, delivery, acceptance, processes, and products of bismuth and bismuth alloys; limits acceptance of rated orders and inventories.	NPAF-40(R)	Tin, Lead & Zinc Div.
M-50	Electric Utilities	8-21-51	Revised	Sets up regulations on procurement and use of materials by electric utilities.		Defense Electric Power Admin.
M-54	Platinum	3-31-51		Restricts platinum deliveries to dealers, refiners, distributors, processors, and consumers; restrictions on sale and use.		Misc. Metals & Minerals Div.
M-59	Strapping	5-1-51		Limits inventories and use of strapping		Containers & Packaging Div.
M-64	Used Rails, Used Axles, & Used Cast-Iron Car Wheels.	8-20-51	Revised	Deliveries must be authorized by NPA.		Iron & Steel Div.
M-65	Conservation of Metal & Printing Plates.	9-17-51	Revised	Specifies how long printing plates may be held		Printing & Publishing Div.
M-66	Artificial Graphite & Carbon Electrodes	9-11-51	Revised	Brings artificial graphite and carbon electrodes under allocation	NPAF-97	Misc. Metals & Minerals Div.
M-67	Aluminum Foil Converted	7-27-51	Revised	Restricts use of aluminum foil in containers, wrappers, bags, and envelopes.		Containers & Packaging Div.
M-68	Passenger Cars	9-11-51	Revised	Limits use of controlled materials, aluminum castings and forgings, and automatic transmissions in passenger cars.		Motor Vehicle Div.
M-69	Sulfur	6-1-51		Sulfur shipments must have NPA authorization; monthly supply may not be more than 100 pct of average monthly use.	NPAF-98 NPAF-99	Chemical Div.

M-69 (continued)	Sulfur	11-9-51	Amendment 1	Limits sulfur inventories to a 25-day or practical operating level. Permits sulfur use at 100 pct of 1950 consumption levels.	
M-70	Marine MRO Supplies & Minor Capital Additions.	10-1-51	Revised	Sets up procedure on getting MRO supplies and materials for minor capital additions. Gives new status of certain DO-81P rated orders.	NPAF-104(R) Ordnance & Shipbuilding Div.
M-71	Priorities Assistance to Technical & Scientific Laboratories.	8-23-51	Revised	Provides priority assistance for technical and scientific laboratories; trial production runs of experimental models must be authorized by NPA.	NPAF-109 Scientific & Technical Div.
M-73	Maintenance, Repair, & Operating Supplies for Rail Transportation Systems.	6-28-51		Sets up procedure for rail transportation systems getting requirements for maintenance, repair, operating supplies, and minor capital additions.	NPAF-105(R) Railroad Equipment Div.
M-74	Use of Copper & Copper Base Alloy in Construction Materials.	8-3-51	Revised	Manufacturers and assemblers may not use copper or copper alloys in items listed.	Building Materials Div.
M-75	Steel Shipping Drums	7-6-51		Restricts sale, delivery, and use of steel shipping drums, buckets, kits, and pails.	NPAF-101 Containers & Packaging Div.
M-76	Distribution of Lead	10-29-51	Revised	Allots soft pig lead produced by primary refiners.	NPAF-115 Tin, Lead, & Zinc Div.
M-77	Communications	7-27-51 11-29-51	Amendment 1	Gives rules for procurement and use of materials for MRO and operating construction by communication systems. Sets deadlines for filing allocation applications.	NPAF-117 Communications Equip. Div.
M-78	Maintenance, Repair, Operating Supplies & Capital Additions for the Mining Industry.	8-6-51 9-21-51	Amendment 1	Gives procedure for getting priorities assistance for mining industry (other than producers of solid fuel, petroleum, uranium, or natural gas.) Defines maintenance and repair; changes MRO quotas. Manufacturers may not use DO ratings to buy reagents and chemicals.	Defense Minerals Admin.
M-79	Maintenance, Repair & Operating Supplies for Export.	11-19-51	Revised	Sets up procedure for foreign requirements for maintenance, repair, and operating supplies.	Office of International Trade.
M-80	Iron & Steel-Alloying Materials & Alloy Products.	8-15-51		Melters and processors must file melting schedules and inventory data with NPA. Certain alloying materials must have allocation authorizations by NPA; restricts uses.	NPAF-60 Iron & Steel Div. NPAF-113 NPAF-114 NPAF-102
		9-17-51	Schedule A, Revised	Restricts use of nickel-bearing stainless steel, high nickel alloy and nickel silver.	
		8-15-51	Schedule B	Restricts use of tool steel and high speed steel.	
	Nickel	8-15-51	Schedule 1	Makes nickel subject to complete allocation by NPA	NPAF-114
	Cobalt	8-15-51	Schedule 2	Cobalt allocated by NPA	NPAF-114
	Tungsten	8-15-51	Schedule 3	Tungsten allocated by NPA	NPAF-114
	Molybdenum	8-15-51	Schedule 4	Molybdenum allocated by NPA	NPAF-114
	Columbium & Tantalum	11-8-51	Schedule 5, Revised	Columbium and tantalum allocated by NPA. Columbium- or columbium-tantalum-bearing steels may not be produced, sold, delivered, or purchased without Dept. of Defense or AEC authorized controlled material orders or NPA directives or orders.	NPAF-114

Material "M" orders (continued)

Order No.	Title and Branch	Issued	Additions— Modifications	Purpose	Related NPA Forms	Branch
M-81	Pure Tungsten & Pure Molybdenum.	8-15-51		Pure tungsten and pure molybdenum are allocated. Deliveries must be authorized by NPA.	NPAF-114 NPAF-113	Iron & Steel Div.
M-82	Distribution of Brass Mill Products.	8-31-51		Gives rules on inventories of brass mill products distributors.		Copper Division.
M-83	Mechanical, Hydraulic, Air, and Electrically Operated Jacks.	8-31-51		Prohibits the manufacture or assembly of all jacks not listed.		Motor Vehicles Div.
M-84	Aluminum for Destructive Purposes.	9-7-51		Restrictions on use of aluminum for destructive purposes.		Aluminum & Magnesium Div.
M-85	Emergency Radio Communications Networks & Associated Activities.	10-4-51		Grants quotas for MRO supplies, minor capital additions and new stations to amateur radio operators and Civil Air Patrol members.		Electronics Div.
M-86	Distribution of Copper Wire Mill Products to Distributors.	10-5-51		Permits fourth quarter inventory replenishment for distributors of copper wire mill products.		Copper Div.
M-87	Maintenance, Repair & Operating Supplies, & Capital Additions for the Solid Fuels Industries.	10-24-51		Gives coal and coke producers priorities aid for MRO supplies and minor capital additions.		Defense Solid Fuels Admin.
M-88	Aluminum Distributors	11-8-51		Authorizes replacement of warehouse stocks of wrought aluminum products shipped out on CMP orders.		Aluminum & Magnesium Div.
M-89	Distribution of Controlled Materials to Retailers.	11-19-51		Sets quotas of controlled materials to allow retailers to maintain inventory stocks.		Consumer Durable Goods Div.
M-90	Color Television	11-20-51		Bans manufacture for general sale of color television sets.		Consumer Durable Goods Div.
M-91	Selenium	12-11-51		Places selenium under complete allocation. Limits inventories to 90 days.		Misc. Metals & Minerals Div.
M-92	Automobile Wreckers	12-11-51		Requires inventory reports from auto wreckers. Limits acceptance of deliveries. Requires quarterly turnover of cars manufactured prior to 1946.		Motor Vehicles Div.

The Iron Age Defense

TO BUSINESS MEN: This is YOUR Defense Personnel Directory. It will prove invaluable to you in contacting the people in Washington you want to call or visit. If you don't know whom you should contact on a particular problem, you should look under the columns headed Section and Title. We have tried to make this directory as complete as possible by including building and location, room number and phone and extension number for each defense official. In order to help you keep your Defense Personnel Directory up to date for handy reference THE IRON AGE will list changes as they occur. THE IRON AGE wishes to thank the various defense agencies for their cooperation in making this directory possible.

OFFICE OF DEFENSE MOBILIZATION

Executive Office Bldg. EXecutive 3300

Sec. or Div.	Title	Individual	Room	Ext.
	Director	Charles E. Wilson	100½	2101
	Asst. to Dir.	Clay Bedford	105½	2116
	Gen. Counsel	Rodolfo Correa	178	2131
Foreign Supply	Asst. to Dir.	William Y. Elliott	164	2243
Production	Asst. to Dir.	Raymond G. Fisher	181	2182
Manpower	Asst. to Dir.	Arthur S. Flemming	111	2223
Stabilization	Asst. to Dir.	A. E. Howse	184	497
Materials	Asst. to Dir.			
Staff Director	Asst. to Dir.	Charles B. Stauffacher	105½	2131
Science Advrsy.	Chairman	Dr. O. E. Buckley	159½	3563
Public Information	Asst. to Dir.	Andrew H. Berding	174	471
Information	Asst. Dir.	Scott Hershey	174½	494

DEFENSE PRODUCTION ADMINISTRATION

New GAO Bldg. (Except As Noted) STerling 5200

	Administrator	Manly Fleischmann	3R-2	4461
	Spec. Asst. to Adm.	William Hoff	3R-2	3442
	Dir., Policy Dev.	Ernest A. Tupper	3W-2	5188
	Dep. Adm., Airer.	Harold R. Boyer	4A-4	4422
	Dep. Adm., Alum.	Samuel W. Anderson	2T-2	5551
	Asst. Adm., Prod.	William C. Truppner	3K-2	4111
	Asst. Adm., Dist.	William A. Murphy	133	3361
	& Controls	(Old GAO Bldg.)		
	Exec. Asst.	Russell A. Heddleston	4H-1	3858
	Dir. of Security	Richard W. Lawrence	4I-9	5177
	Gen. Counsel	Charles H. Kendall	4H-16	5121
	Asst. Adm., Info.	Edward K. Moss	3N-2	4466
	Office of Program and Requirements			
	Deputy Admin.	Charles E. Wampler	4G-7	5316
	Asst. to Dep. Adm.	Melvin L. Anshen	4F-7	5313
	Asst. to Dep. Adm.	George N. Lilygren	4E-7	4524
Expansion Goals	Director	Glenn E. McLaughlin	4D-7	3148
Materials Accounting	Act. Dir.	H. J. Dammeyer	4C-6	5377
Requirements Comm.	Chairman	G. A. Steiner	4E-7	4524
Military & AEC	Director	W. N. Lawrence	4I-9	5425
Foreign Require.	Director	O. R. Johnson	4I-8	5437
Indus. Manpower	Director	Emmett H. Welch	4I-1	5453
	Office of Resources Expansion			
Resources Expansion	Dep. Admin.	James F. King	3N-16	5246

Defense production administration (continued)

Sec. or Div.	Title	Individual	Room
	Office of Procurement and Production		
	Deputy Admin.	Clay P. Bedford	105½ (Exec. Office)
	Asst. Dep. Admin.	Warren M. Huff	4B-4
Defense Mobilization	Coordinator	Eugene F. Bertrand	4B-6
Conservation Div.	Director	Howard Coonley	4F-1
Critical Areas	Chairman	Ivan D. Carson	4G-2
Electronics Prod. Bd.	Chairman	Edmund T. Morris	2362 (Tempo. Bldg.)
	Office of Staff Service		
	Deputy Admin.	Nathaniel Knowles	4C-2
	Sp. Asst. to Dep. Admin.	Francis P. Hoeber	4C-2
	Staff Asst.	Harry O. Compton	4A-4
Analysis & Reports	Director	Alvin Mayne	4D-1
Mil. Program Analysis	Director	Henry Rau	4D-1

NATIONAL PRODUCTION AUTHORITY

Dept. of Commerce Bldg. (Except As Noted) STerling 9200

	Administrator	Manly Fleischmann	5800
	Deputy Adm.	Thomas S. Nichols	5100-A
	Ind. Adv. Comm.	G. Lyle Belsey	5212
	Appeals Board	T. Munford Boyd	5805
	Asst. Adm. for Production Controls	Walter C. Skuce	5009
	General Counsel	John H. Hollands	5120
	Dir. Comp. Div.	John H. Peckham	2051 Temp. Bldg.

METALS AND MINERALS BUREAU

New GAO Bldg. (Except As Noted) STerling 5200

	Asst. Adm.	Norman W. Foy	2D
	IRON AND STEEL DIV.		
	New GAO Bldg. STerling 5200		
	Director	W. B. Quail	2H-10
	Deputy Dir.	H. Johnson	2H-8
	Ch. Prod. Dir.		
	Comm.	E. D. Bickford	2G-8
	" V-C	R. W. Wilkins, Jr.	2G-6
	Asst. to Dir.	F. T. McCue	26-7

Production and Distribution Branch

Alloy Steel	Chief	J. J. Boylan	2A-5
Castings	Chief	A. J. McDonald	2D-6
Cold Drawn Bar	Chief	W. A. Thompson	2A-6
Sheet & Strip	Chief	W. H. Pocock	2A-1
Stainless Steel	Chief	W. J. McCune	2A-6
Structural Shapes	Chief	Robt. Smice	2A-4
Tin Plate	Chief	F. A. McClelland	2C-6
Tool Steel	Chief	F. Kremp	2A-6
Tube	Chief	W. J. Resiner	2D-4
Warehouse	Chief	V. H. Prange	2B-6
Wire	Chief	N. F. Melville	2B-6
Forgings	Chief	James Sweeney	2C-6
Pipe	Chief	C. T. Hapgood	2D-4
Plate	Chief	Paul Landis	2D-4

Metallurgical and Conservation Branch

Asst. Dir.	E. J. Hergenroether	2H-9
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Defense PERSONNEL

Defense production administration (continued)

Title	Individual	Room	Ext.
of Procurement and Production			
Duty Admin.	Clay P. Bedford	105½ (Exec. Office)	2116 (EX. 3300)
Dep. Admin.	Warren M. Huff	4B-4	3106
Coordinator	Eugene F. Bertrand	4B-6	3151
Director	Howard Coonley	4F-1	3401
Director	Ivan D. Carson	4G-2	3738
Director	Edmund T. Morris	2362 (Tempo. Bldg. T)	3585
Office of Staff Service			
Duty Admin.	Nathaniel Knowles	4C-2	3333
Asst. to Dep.	Francis P. Hoeber	4C-2	4551
Admin.			
Asst.	Harry O. Compton	4A-4	4471
Director	Alvin Mayne	4D-1	4816
Director	Henry Rau	4D-1	3387

L PRODUCTION AUTHORITY

Free Bldg. (Except As Noted) STerling 9200

Administrator	Manly Fleischmann	5800	4461
Duty Adm.	Thomas S. Nichols	5100-A	4476
Adv. Comm.	G. Lyle Belsey	5212	5511
Deals Board	T. Munford Boyd	5805	3820
t. Adm. for Pro-			
duction Controls	Walter C. Skuce	5009	4111
General Counsel	John H. Hollands	5120	4331
Comp. Div.	John H. Peckham	2051 Tempo. Bldg. T	4393

ALS AND MINERALS BUREAU

Bldg. (Except As Noted) STerling 5200

t. Adm.	Norman W. Foy	2D	3351
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IRON AND STEEL DIV.

New GAO Bldg. STerling 5200

Director	W. B. Quail	2H-10	3281
Duty Dir.	H. Johnson	2H-8	4346
Prod. Dir.			
Comm.	E. D. Bickford	2G-8	5748
" V-C	R. W. Wilkins, Jr.	2G-6	3315
t. to Dir.	F. T. McCue	26-7	3962

Production and Distribution Branch

of	J. J. Boylan	2A-5	5705
of	A. J. McDonald	2D-6	5891
of	W. A. Thompson	2A-6	5949
of	W. H. Pocock	2A-1	5991
of	W. J. McCune	2A-6	4944
of	Robt. Smice	2A-4	4011
of	F. A. McClelland	2C-6	5008
of	F. Kremp	2A-6	5916
of	W. J. Resiner	2D-4	5439
of	V. H. Prange	2B-6	3059
of	N. F. Melville	2B-6	3420
of	James Sweeney	2C-6	3004
of	C. T. Hapgood	2D-4	4038
of	Paul Landis	2D-4	4947

Surgical and Conservation Branch

t. Dir.	E. J. Hergenroether	2H-9	4868
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Iron and steel div. (continued)

Sec. or Div.	Title	Individual	
Ferrous Alloys and Metals Branch			
	Asst. Dir.	J. H. Critchett	2H
Ferrous Alloys	Chief	F. F. Franklin	2H
Nickel	Chief	H. Larsen	2H
Tungsten & Molybdenum	Chief	H. Lusk	2H
Operations	Chief	Geo. Kunkle	2H
Facilities and Raw Materials Branch			
	Asst. Dir.	R. J. Wyser	2H
MRO	Chief	F. A. Weidman	2H
Pig Iron	Chief	J. A. Claussen	2M
Plant & Facilities	Chief	H. L. Leyda	2H
Refractories & Fluxes	Chief	Mrs. M. M. Savers	2K
Scrap	Chief	M. S. Plant	2M

ALUMINUM AND MAGNESIUM DIV.

New GAO Bldg. STerling 5200

	Director	T. A. Lynch	2
	Magnesium Branch		
	Chief	Perry D. Helser	2
Requirements & Distribution	Chief	A. M. Dinkfeld	2
Castings	Act. Chief	G. A. Pagonis	2
Wrought Products	Act. Chief	P. D. Helser	2
	Products Branch		
	Chief	Joseph Irwin	2
Pig Ingot & Scrap	Chief	Conrad Briel	2
Extrusions	Chief	E. D. LaTouche	2
Sheet, Plate & Foil	Chief	Robert Farrell	
Powder	Chief	A. W. Pingle	
Rod, Bar, Wire & Forgings	Chief	W. V. Gilbert	
Castings	Chief	Lloyd Mapes	
Warehouse	Chief	Harold Beebe	

Requirements and Distribution Branch

	Chief	Connor Batman	2H
Air Force	Chief	George Mahoney	2H
Army & Navy	Chief	A. M. Martin	2H
For. Chem. & Rub.	Chief	Richard Taylor	2H
Indus. & Agri. Equip.	Chief	Lawrence Moyer	2H
Tex. Leather & Spec.	Chief	J. Medley	2H
Other Claimant Agencies	Chief	R. Heffernan	2H
Consumer Goods & Bldg.	Chief	Donald Sgritta	2H

Program and Statistics Branch

Chief	S. M. Blumenreich	2H
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Conservation and Order Administration Branch

Chief	Herbert Cullen	2H
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Facilities Branch

Chief	Henry Scott	2H
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COPPER DIV.

New GAO Bldg. STerling 5200

Director	F. H. Hayes	2H
Deputy Dir.	J. W. Mullally	2H

EL Directory

	Room	Ext.
	2H-9	4795
	2L-8	3756
	2K-9	4681
	2L-9	4695
	2K-8	3670
	2H-11	3960
	2K-9	4939
	2M-10	3026
	2M-9	3934
	2K-10	4017
	2M-10	3782
DIV.		
	2N-1	5630
	2L-1	5520
	2L-2	4708
	2K-2	5844
	2L-1	5520
	2M-1	5480
	2J-1	4449
	2K-1	4742
	2J-1	6441
	2J-3	4928
	2J-1	4744
	2J-2	4718
	2K-1	4737
	2N-1	3778
	2K-2	4736-5036
	2K-2	5550
	2J-1	4744
	2J-2	5910
	2J-2	4752
	2J-1	4776
	2J-2	5910
	2L-1	3597
Branch	2L-1	3971
	2J-5	4713-3610
	2H-15	3318
	2H-15	3275

LOCATION OF BUILDINGS

Dept. of Commerce Bldg..... 14th St. & Independence Ave., SW
 Dept. of Interior Bldg..... C St. between 18th & 19th St., NW
 Executive Office Bldg..... 17th St. & Pennsylvania Ave., NW
 ICC Bldg. 12th St. & Constitution Ave., NW
 New GAO Bldg..... 5th & G Sts., NW
 Temporary Bldg. E..... 4th St. & Adams Drive, SW
 Temporary Bldg. S..... Jefferson Dr. near 6th St., SW

Copper Div. (continued)

Sec. or Div.	Title	Individual	Room	Ext.
Wire Mill Branch				
	Chief	E. H. Rising	2H-14	5924
	Asst. Ch.	J. H. Crawford	2H-14	5923
Allocation	Chief	F. Spitale	2J-14	4924
Program	Chief			
Components	Chief	D. R. DeRoche	2K-14	5076
Production & Facilities	Chief	C. Ange	2K-14	5463
Warehouse	Chief	W. Dwyer	2L-14	3989
Brass Mill Branch				
	Chief	David T. Marvel	2H-13	4920
	Asst. Chief	J. V. O'Connor, Jr.	2J-13	5468
	Asst. Chief	P. W. Taylor	2J-13	5403
Allocation	Chief	L. O. Thompson	2K-13	4925
Production & Scheduling	Chief	W. Ashlock	2J-13	5973
Facilities & Components	Chief	E. B. Blakely	2J-13	4926
Technical	Chief	H. Bedworth	2J-13	5468
Warehouse	Chief	L. C. Chew	2H-13	3943
Program	Chief	J. O'Connor, Jr.	2J-13	5468
Foundry Branch				
	Chief	W. A. Meissner, Jr.	2H-12	3376
Technical		H. B. Gardner	2H-12	5429
Allocations & Records		J. R. Varndell	2J-12	3970
Copper Raw Materials Branch				
	Chief	M. L. Trilsch	2J-15	5404
Scrap	Chief	C. F. Williams	2J-15	5069
	Program Off.	W. E. Bradford	2K-15	4614
Conservation	Chief	L. T. Bonner	2M-15	4607
Statistics & Reports	Chief	G. Haycraft	2L-15	4724
Orders & Regulations	Chief	H. A. Barron	2M-15	5497
CMP & Program	Chief	John P. Moore		3098
TIN, LEAD AND ZINC DIV.				
New GAO Bldg. STerling 5200				
Director	Erwin Vogelsang	2E-1	4501	
Dep. Dir.	John Sellon	2E-1	5363	
Acting Ch.	Arthur J. Cavanaugh	2H-1A	3430-3930	
Lead Branch	Edward L. Hogan	2E-2	3240	
Tin Adjustments	Margaret B. Murphy	2G-2	3015	
Zinc & Cadmium Adj.	Edwina Parkinson	2G-2	5484	
Lead, Antimony, Bismuth Adj.				
Tin	Chief	William L. Raup	2F-1B	3166-7
Program	Chief		2G-1A	3198-5436
Zinc	Chief	Herbert O. Rogers	2G-1B	4022-5087

MISCELLANEOUS METALS AND MINERALS DIV.

New GAO Bldg. STerling 5200				
Sec. or Div.	Title	Individual	Room	Ext.
	Director	W. A. White, Sr.	2I-1	6360
	Deputy Dir.	H. B. Sharpe	2I-1	5361
Selenium	Chief	George C. Branner	2H-3	6426
Asbestos, Fibers, Textiles				
& Fibrous Glass	Chief	Ray H. Coultrap	2J-3	5079
Industrial Diamonds	Chief	Marguerite Dotye	2I-2	6425
Mica	Chief	Alexander H. Jeffries	2J-3	6434
Precious Metals	Chief	Mary Lubig	2H-2	5068
Fluorspar	Chief	Samuel H. Manian	2I-3	5084
Artificial Graphite	Chief	A. B. Oatman	2I-2	5641
Clays	Chief	Donald S. Phelps	2H-3	4927
Natural Graphite	Chief	Valentine C. Smith	2J-3	5086
Program & Statistics	Chief	John E. Steinhauer	2H-2	3091
Beryl & Monazite	Chief	John M. Patterson	2I-4	5086

INDUSTRIAL & AGRICULTURAL EQUIPMENT BUREAU

New GAO Bldg. STerling 5200			
Asst. Administrator	Franz Stone	3H-16	3391
Dep. Asst. Adm.	Frank Shields	3H-16	3392
Admin. Officer	Herschel Snead	3H-9	5136

METALWORKING EQUIPMENT DIV.

New GAO Bldg. STerling 5200				
	Director	S. W. Bergstrom	3H-14	4687
	Asst. to Dir.	P. S. Gaston	3H-13	4629
	Asst. to Dir.	T. R. Rudel	3H-13	5856
	Admin. Asst.	W. W. Kennedy	3J-14	5652
	Product Distribution Branch			
	Chief	Howard L. Rich, Jr.	3J-15	6961
Order Board	Chief	E. Payson Blanchard	3J-13	4506
Used & Avail. Tools	Chief	Wm. S. McCormick	3K-14	4803
Priorities & Dist.	Chief	Harry E. F. Hawkins	3J-14	4370
Diversification & Substitution	Chief	Edgar Grossman	3K-14	4130

Production Control Branch

Production Liaison				
Service	Chief	Joe Willis	3E-2	4857
Materials & Components	Chief	Joseph Fitzgerald	3K-16	3262
Pool Order	Chief	Henry W. Armstrong	3I-13	5708
Subcontract Facilities	Chief	Robert M. Husband	3K-13	5909

INDUSTRIES BRANCH

	Chief	Dale P. Spoor	3J-16	4827
Abrasive Product	Chief	Ralph O. Anderson	3K-15	4799
Cutting Tool	Chief	W. T. Buchanan	3K-15	5285
Gages, Precision				
Measuring Instruments	Chief	Edward J. Masterson	3L-16	6034
Foundry Equip. & Sup.	Chief	Francis E. Fisher	3L-16	4804
Machine Tools	Chief	Fred G. Ashley	3K-16	4827
Indus. Heating Equip.	Chief	Charles B. Kentnor, Jr.	3L-16	4813
Wire Drawing & Rolling				
Mill Equipment	Chief	J. G. Fitzgerald	3K-16	3262
Light Power Driven				
Equipment	Chief	Herbert A. Newman	3K-16	4802
Machine Tool Attach. &				
Accessories	Chief	Oscar Iber	3K-16	4802
Tools, Dies, Jigs, Fixtures	Chief	Jacob J. Demuth	3J-16	4801
Forge & Press Equip.	Chief	Howard W. Carlisle	3J-16	6961
Welding Equipment	Chief	W. B. Browning	3M-16	4814

PROGRAM & REQUIREMENTS BRANCH

CMP	Chief	James Shiels	3M-14	3978
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OFFICE OF

Sec. or Div.	Temporar	Title
		Director
		Exec. Asst.
Off. for Adv. Comm.		Director
		Industrial Material
		T
		Director
		Asst. Dir.
		Asst. Dir.
		Admin. O
		Div. Econ
		A
		Chief
Passenger Car		Chief
Parts & Accessories		Chief
Truck & Trailer		Chief
Aircraft		Chief
Marine		Chief
		Build
		Chief
Roofing & Insulation		Acting Ch
Masonry Materials		Chief
Hardware & Misc. Prod.		Chief
Prefab. Structures		Chief
Mechanical Bldg. Equip.		Acting Ch
Con. & Dis.		Chief
		M
		Chief
Auxiliary Machinery		Chief
Con., Min. & Quarry.		
Mchry.		Chief
Cut. Tools & Indus. Sup.		Chief
Elec. Mchry. & Power		
Equip.		Chief
Farm Mchry. & Equip.		Chief
Gen. Indus. Mchry.		Chief
Mchne. Tools (new & used)		Chief
Mchne. Tools (new & used)		Bus. Spec
Metals Extrac. & Fab.		
Mchry.		Acting Ch
Trans., Mat. Handl. & Instr.		Chief
		Chief
Iron & Steel Products		Chief
Copper & Brass		Chief
Lead, Tin & Zinc		Chief
Castings & Forgings		Chief
Light Metals		Chief
Scrap Iron & Steel		Chief
Misc. Metals & Minerals		Chief
Fabricated Products		Chief

Personnel Directory—continued

OFFICE OF PRICE STABILIZATION

Temporary Bldg. E. STerling 4200

Title	Individual	Room	Ext.
Director	Michael V. DiSalle	H-383	3215
Exec. Asst.	Thomas Klechak	8-311	4318
Director	Ethel B. Gilbert	8-220	8183

Industrial Materials and Manufactured Goods Div.

Temporary Bldg. S

Director	Murray D. Smith	2067-S	3132
Asst. Dir.	John M. Bulkley	2067-S	3133
Asst. Dir.	Sam M. Ewing	2059-S	4989
Admin. Off.	William F. Hagan	1053-S	6273
Div. Econ.	Charles W. Moore	2055-S	5843

Automotive Branch

Chief	W. LeRoy Jordan	1052-S	8884
Chief	Kirk A. Metzertott	1403-S	8879
Chief	Clarence Brown	1409-S	4938
Chief	Vacant		
Chief	Vacant		
Chief	Vacant		

Building Materials Branch

Chief	Walter H. Acheson	2533-S	3502
Acting Ch.	Donald Linville	2538-S	3119
Chief	Vacant		
Chief	Henry K. Bryson	2538-S	3119
Chief	Vacant		
Acting Ch.	Richard C. Cook	2536-S	3118
Chief	Thomas G. Letchworth	2540-S	8026

Machinery Branch

Chief	Leslie J. Carson	2526-S	6534
Chief	Warren B. Leland	2506-S	8887
Chief	Arthur F. Loder	2518-S	8880
Chief	Edward L. Norman	2510-S	8976

Chief	Harold M. Jalonack	2520-S	8889
Chief	Archie A. Stone	2504-S	2291
Chief	William F. Earls	2524-S	5533

Chief	Blaine C. Lisk	2508-S	5990
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Bus. Specialist	Ralph R. Erwin	2508-S	5990
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Acting Ch.	Alec M. Sheard	2516-S	8886
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Chief	Lawrence W. Wallace	2514-S	3519
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Metals Branch

Chief	William Kerber	2503-S	5108
Chief	Vacant		
Chief	Arthur F. Norling	2513-S	8095
Chief	Charles C. Rieth	2505-S	8446
Chief	Edward J. Metzger	2511-S	5228
Chief	William N. White, Jr.	2517-S	3236
Chief	David C. Holub	2519-S	8236
Chief	Joseph C. Twinem	2517-S	8892
Chief	Howard H. Needham	2509-S	4395

DEFENSE MATERIALS PROCUREMENT

General Services Admin. Bldg. EXecutive 4

Sec. or Div.	Title	Individual
	Administrator	Jess Larson
	Dep. Administrator	Howard I. Young
Foreign Expansion Division	Director	Charles E. Stott

SMALL DEFENSE PLANTS ADMINISTRATION

Old Washington Post Bldg. STerling 2858

	Administrator	Telford Taylor
	Asst. Admin. for Administration	H. W. Brawley
Admin. Services	Director	John W. Garwell
Business Assistance	Director	R. Martin Stevens
Budget & Finance	Director	Keith L. Hanna
Contract Procurement	Director	Ferdinand M. Bro
Econ. Program & Reports	Director	Wm. Summers Jo
Field Operations	Director	Harry E. Pontius
	General Counsel	James M. McHane
Information	Director	Albert Lubin
Loans	Director	Richard C. Dyas
Materials	Director	Roger E. Allen
Organization & Management	Director	Lawrence S. Casa
Personnel	Director	D. J. Carr

DEFENSE TRANSPORT ADMINISTRATION

Interstate Commerce Commission Bldg. REpublic

	Administrator	James K. Knudson
	Dep. Admin.	Homer C. King
	Exec. Asst.	W. S. Rainville, Jr.
	Gen. Counsel	Francis A. Silver
	Admin. Officer	Clarence Barker
	Info. Officer	John Cunningham
Equip. & Materials	Director	F. Berkeley Robins
Inland Water Trans.	Acting Director	John P. Coakley
Manpower	Director	Samuel L. Newman
Port Utilization	Director	Andrew Lane
Railroad Transport	Director	Elmer J. Stubbs
St. & Highway Trans.	Director	Edward T. Hicks, J
Warehousing & Storage	Director	Harold K. Osgood
Tax Amortization & Defense Loan	Chief	Robert R. Hendon

PETROLEUM ADM. FOR DEFENSE

Dept. of Interior Bldg. REpublic 1820

Inter. Sec. & Petrol.

Administrator	Oscar L. Chapman
Deputy Admin.	Bruce K. Brown
Asst. Dep. Admin.	Hugh A. Stewart

Domestic Industry Operations

Asst. Dep. Admin.	Alfred P. Frame
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Production Division

Director	Robert L. Foree
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AGENCY

Room	Ext.
6137	4312
7137	4131
7130	4616

ATION

305	2271
417	3818
103	3315
511	3628
424	3244
505	3377
402	2017
300	3295
322	2344
504-A	3256
409	3282
524	3258
421	3241
423	3671

TION

7500	
4134	6516
4134	6403
5410	5833
5311	5274
5108	3513
1116	6309
4117	2295
4123	3417
4217	4536
3430	8023
5310	8801
4133	2113
3430	4447
1210	5262

E

6151	704
6512	3831
6521	4164-65
6516	3891-3892
2557	4934-35

Petroleum admin. for defense (continued)

Sec. or Div.	Title	Individual	Room	Ext.
Natural Gas Production & Refining Division				
	Director	Richard P. Walsh	6445	4747-4794
Refining Division				
	Director	C. Eugene Davis	6459	5343-44
Supply & Transportation Division				
	Director	George A. Wilson	5251	2797-98
Materials Division				
	Director	Richard M. Morrison	2542	5397
Operations Service Division				
Trans. Materials	Chief	O. M. McClatchey	1070	5351
Projects	Chief	William E. Tyler	2023	3426
Program	Director	Cecil L. Burrill	6458	2728-3094
Gas Operations				
	Asst. Dep. Adm.	Charles P. Rather	6517	5321-22
Gas Facilities	Director	Louis C. Sonnen	6646	3924-3946
Gas Planning	Director	Walter E. Caine	5020	5360-2521

DEFENSE SOLID FUELS ADMINISTRATION

Dept. of Interior Bldg. REpublic 1820

	Administrator	Charles W. Connor	5310	5225
	Dep. Admin.	E. T. Klett	5316	5210
	Dep. Admin.	C. R. Ferguson	5320	5211
	Dep. Admin.	W. F. Hahman	5312	5391
Information	Chief	A. L. Newman	5315	5064
Equip. & Materials	Chief	C. W. Woosley	5214	4437
Industrial Finance	Chief	L. N. Plein	5322	2396
Manpower	Chief	L. M. Morris	5320	5211
Coke	Chief	Geo. P. Wilson, Jr.	5215	3403
Transportation	Chief	W. J. Howard	5211	2073

EMERGENCY PROCUREMENT SERVICE

Seventh and D Streets SW. REpublic 7500

	Commissioner	A. J. Walsh	7132	2243
Purchase Div.	Acting Director	H. C. Maull, Jr.	3002	2672
	Special Asst.	W. M. B. Freeman	7007	5108
	Asst. Dir.	Raymond Eberly	3002	3085
Ferrous Metals	Chief	C. W. Chaffee	3120	5692
Rubber	Director	J. B. Ingle	5002	6178
Research & Develop.	Director	Tom V. Wilder	7008	6356
Storage & Transpor.	Director	J. E. Salisbury	3028	3432
	Admin. Officer	H. C. Cleveland	7124	4691

NATIONAL SECURITY RESOURCES BOARD

Executive Office Bldg. STerling 4700

	Chairman	Jack Gorrie	206	3311
	Vice Chairman	Edward T. Dickinson	202	3483
	Spec. Asst.	Robert O. Renville	204	3242
	Spec. Asst.	Tom Yarbrough	305	3245
	Gen. Counsel	James L. Kunen	202	3431
	Program Asst.	Dal Hitchcock	200 1/2	3212
	Econ. Adviser	Oscar Enbler	216 1/2	3358
Special Security Meas.	Director	Ethan Allen Peyser	216	3325

January 3, 1952

NPA Controlled Materials Plan Regulations

CMP Regulation No.	Title	Issued	Additions— Modifications	Purpose	Related NPA Forms	Branch
1	Basic Rules of the Controlled Materials Plan.	5-3-51		Defines rights and obligations under CMP. Rules on authorizing production schedules and procuring materials.		
		7-12-51	Amendment 1	Recipients of allotments under CMP are limited to authorized amounts of steel, copper, and aluminum.		
		8-1-51	Amendment 2	Amends regulation on scheduling and accepting authorized controlled material orders.		
		8-22-51	Amendment 3	Provides for "frozen" Class A products.		
		7-12-51	Direction 1, Revised	Priorities for producers of Class B products.		
		6-8-51	Direction 2	Gives controlled materials producers authority to get uncontrolled materials.		
		9-17-51	Direction 3, Revised	Restricts monthly orders to 40 pct of quarterly allotment.		
		9-28-51	Direction 4, Revised	Regulations on use of imported steel. Prohibits use of copper or aluminum controlled materials above manufacturers allotment.		
		7-30-51	Direction 5	Applies to deliveries of controlled materials ordered during second and third quarters of 1951.		
		8-22-51	Direction 6	Class A product manufacturers may ask customers for allotment of controlled materials to fill order.		
2	Inventories of Controlled Materials.	5-10-51		Limits the quantities of controlled materials ordered, received, or delivered.		
3	Basic Rules of the Controlled Materials Plan—Preference Status of Delivery Orders.	9-13-51	Revised	Symbol "DX" to be applied by NPA for quick delivery in top urgency defense programs (products and materials other than steel, copper, or aluminum).		
		8-6-51	Direction 2, Revised	Gives certain delivery orders for uncontrolled materials or products equal status with delivery orders with DO rating.		
4	Deliveries of Controlled Materials by Distributors.	5-10-51		Gives rules on distributors' delivery of controlled materials under CMP.		
5	Maintenance, Repair, & Operating Supplies & Minor Capital Additions Under CMP.	7-17-51	Revised	Provides limited quantities of controlled materials and products for private businesses, government agencies, or public and private institutions.		
		8-10-51	Amendment	Manufacturers may not order more than 40 pct of quarterly quotas of MRO during first month. Delete items from Schedule 1, CMP Reg. 5.		
		8-3-51	Direction 1	Gives procedure for getting printing plates.		
		8-10-51	Direction 2	Provides for material replacement of items lost or damaged in flood areas.		
6	Construction under CMP	8-3-51	Revised	Explains how to get materials for construction under CMP.		
		8-22-51	Direction 1, Revised	Gives procedure for placing authorized controlled material orders and DO rated orders, for obtaining small quantities of material for construction projects. Amends Schedule 1 on copper and copper-base alloys. Suggests alternatives to filing Form CMP-4C.		
		8-10-51	Direction 2	Provides means for getting materials needed in reconstruction of buildings damaged in flood areas.		
7	Repair Parts & Materials for Repairman under CMP.	7-6-51		Sets up regulations on getting controlled materials and products and uncontrolled materials for repairman.		

NPA Forms: Number, Description and Filing Dates

Form No.	Issued or Revised	Title	Related Order	Division	File Date	Copies
NPAF-2	11-7-50	Application for Priority Assistance for Production Equipment		General Industrial Equipment.	On application	4
NPAF-7	7-23-51	Tin: Consumers Monthly Report and Allocation Request	M-8	Tin, Lead, and Zinc	20th of month.	4
NPAF-8	8-21-51	Customs Transaction Certificate on Imported Tin	M-8	Tin, Lead, and Zinc	On occasion	2
NPAF-17	10-23-51	Steel Producers Monthly Report of Shipments and Past Due Orders	M-1	Iron and Steel	15th of month	4
NPAF-24A	7-25-51	Construction: Application for Adjustment or Exception to NPA M-4A	M-4A	Construction Controls	On application	2
NPAF-31	9-10-51	Manufacturer's Monthly Report of Orders on Hand for Power Equipment or Electric Equipment.	M-44	Electrical Equipment; Engine and Turbine.	15th of month	1
NPAF-32	10-2-51	Iron and Steel Scrap: Dealers', Brokers', and Automobile Wreckers' Reports of Stocks, Receipts, and Shipments (Monthly).	M-20	Iron and Steel	10th of month	3
NPAF-33	10-2-51	Iron and Steel Scrap: Producer's Report of Stocks, Production, and Shipment (Monthly).	M-20	Iron and Steel	10th of month	2
NPAF-51	6-25-51	Manufacturers' Plant Report of Raw Material Requirements.		Chemical	As specified	1
NPAF-60	4-5-51	Melting Schedule: Wrought and Cast Ferrous and Nonferrous Products	M-1, M-80	Iron and Steel	1st of month preceding month covered by report.	4
NPAF-62	4-10-51	Metalworking Machines: Manufacturer's Order Board	M-40, M-41	Metalworking Equipment.	10th of month	1
NPAF-63	5-18-51	Electrical Porcelain: Monthly Report of Production Shipments, Unfilled Orders and Inventories.	M-17	Consumer Durable Goods	10th of month	2
NPAF-74	5-1-51	Sulphuric Acid: Customer's Report of Uses for Sulphuric Acid.		Chemical	As specified	1
NPAF-76	5-8-51	Request to Advance Delivery Date of Production Equipment for Defense Purposes.		General Industrial Equipment.	On application	2
NPAF-78	8-8-51	Maintenance, Repair and Operating Supplies: Application for Adjustment or Exception CMP Regulation 5.	CMP Reg. 5	Production Evaluation	On application	3
NPAF-82	5-11-51	Annual Truck Trailer Production Report.		Motor Vehicle	15 days after receipt	1
NPAF-83	9-7-51	Copper Forms and Products: Report of Operations		Copper	10th of month	4
NPAF-84	10-23-51	Copper Controlled Materials Producers Program Report	M-16	Copper	10th of month	3
NPAF-97	10-31-51	Artificial Graphite and Carbon Electrodes (Quarterly Inventory Receipts, Consumption Allocation Request).	M-66	Miscellaneous Metals and Minerals.	1st day of month preceding each calendar quarter.	4
NPAF-100	8-27-51	Steel Producers' Monthly Production Directive Report.	M-1	Iron and Steel	15th of month	5
NPAF-101	7-9-51	Adjustment or Exception—Steel Shipping Containers	M-75	Containers and Packaging	On application	3
NPAF-102	6-11-51	Processing Schedule (Melting Excluded)	M-1, M-80	Iron and Steel	1st of preceding month	4
NPAF-105	6-25-51	Application for Quota and for Emergency Exception for Maintenance, Repair and Operating Supplies, and Minor Capital Additions for Transportation Systems.	M-73	Railroad Equipment	As specified	4
NPAF-109	6-23-51	Application—Report for Technical and Scientific Laboratories.	M-71	Scientific and Technical Equipment.	On application	3
NPAF-110	9-10-51	Slab Zinc: Consumers' and Dealers' Allocation Request	M-9	Tin, Lead, and Zinc	15th of month	3
NPAF-112	7-11-51	Monthly Truck Production Report—Manufacturers		Motor Vehicle	10th of month	2
NPAF-113	7-12-51	Alloying Materials or Pure Metals—Inventory and Use Report	M-80, M-81	Iron and Steel	See order	
NPAF-114	7-13-51	Restricted Alloying Material or Pure Metals Application for Allocation or Inventory Use Authorization.	M-80, M-81	Iron and Steel	See order	
NPAF-115	7-11-51	Primary Soft Pig Lead: Consumers and Dealers Allocation Request	M-76	Tin, Lead, and Zinc	10th of month	3
NPAF-117	7-25-51	Communications MRO and Construction Programs NPA Order M-77	M-77	Communications Equipment.	As specified	4
NPAF-118	9-18-51	Steel Castings Producer's Monthly Report of Shipments, Unfilled Orders and Operating Rate.		Iron and Steel	10th of month	2
NPAF-122	7-20-51	Aluminum Suppliers: Monthly Report of Shipments, Past-Due Orders, Production and Stocks.	M-5	Aluminum and Magnesium.	10th of month	2
				Motor Vehicle	15 days after receipt	2

January 3, 1952

NPAF-122	7-20-51	Operating Rate. Aluminum Suppliers: Monthly Report of Shipments, Past-Due Orders, Production and Stocks.	M-5	Aluminum and Magnesium.	10th of month.	2
NPAF-124	8-7-51	Basic Data on Truck Production		Motor Vehicle	15 days after receipt	2
NPAF-125	8-20-51	Scrap Dealers Report: Copper and Copper-Base Alloy Scrap Lead and Lead-Base Alloy Scrap.	M-16	Copper	10th of month.	2
NPAF-127	9-4-51	Pure Tungsten and Molybdenum: Monthly Report on Shipments by Processors and Fabricators.	M-81	Iron and Steel	15th of month after completion of allocation month.	2
CMP-4B	10-19-51	Instruction Sheet for Steel Producers	M-1, M-6, M-84	Iron and Steel		
CMP-4C	10-8-51	Construction Projects Instruction Sheet:	M-4A	Production Controls	On application	4
	6-13-51	CMP-4C—General (revised August 1951) CMP-4C-1—Public Health. CMP-4C-2—Education. CMP-4C-3—Construction Projects by or for the Account of the Department of Defense.				
CMP-12	10-19-51	Applicant's Return of Controlled Materials Allotments		Production Controls		2
CMP-60	10-8-51	Notification by Manufacturer of Conformance or Change in Planned Usage of Controlled Material Allotment Permitted by Order M-47B.	M-47B	Consumer Durable Goods	1st day of the 2d month of each quarter.	4

Forms and additional information can be obtained from these Commerce Dept. Offices

Albany, N. Y., 61 Columbia St.	Grand Rapids, Mich., Davenport Institute, 4 Fulton St., E.	Pittsburgh 19, Pa., 700 Grant St.
Albuquerque, N. Mex., Hanosh Bldg., 203 W. Gold Ave.	Harrisburg, Pa., Columbus Hotel Bldg., 229 Walnut St.	Portland 4, Ore., 520 S. W. Morrison St.
Atlanta 3, Ga., 50 Whitehall St., SW.	Hartford 1, Conn., 224 P.O. Bldg., 135 High St.	Providence 3, R. I., 327 P.O. Annex.
Baltimore 2, Md., 200 East Lexington St.	Honolulu, T. H., Dillingham Bldg.	Raleigh, N. C., 2620 Hillsboro St.
Birmingham, Ala., 2nd Ave. and 20th St.	Houston 14, Tex., 602 Federal Office Bldg.	Reno, Nev., 118 W. 2nd St.
Boise, Idaho, 9th and Main Sts.	Indianapolis 4, Ind., Suite 410, 224 N. Meridian St.	Richmond 19, Va., 801 East Broad St.
Boston 9, Mass., 1800 Customhouse.	Jackson, Miss., Room 203, 426 Yazoo St.	Roanoke, Va., 101 Jefferson St.
Bridgeport, Conn., 177 State St.	Jacksonville 1, Fla., 425 Federal Bldg., 311 West Monroe St.	Rochester, N. Y., 119 E. Main St.
Buffalo 3, N. Y., 117 Ellicott St.	Kansas City 6, Mo., 911 Walnut St.	Rockford, Ill., 502 Cutler Bldg., 301 South Main St.
Butte, Mont., 301A O'Rourke Estate Bldg., 14 W. Granite St.	Little Rock, Ark., 309 Center St.	St. Louis 1, Mo., 910 New Federal Bldg., 1114 Market St.
Charleston 3, S. C., 310 Peoples Bldg., 18 Broad St.	Los Angeles 12, Calif., 312 North Spring St.	Salt Lake City 1, Utah, Post Office Bldg., 350 South Main St.
Charlotte, N. C., 401 Chatham Bldg., 302 South College St.	Louisville 2, Ky., 631 Federal Bldg.	San Antonio, Tex., 518 Bedell Bldg., 118 Broadway.
Chattanooga, Tenn., 723 James Bldg., 8th and Broad Sts.	Manchester, N. H., 814 Elm St.	San Diego, Calif., 435 West Broadway.
Cheyenne, Wyo., 410 Federal Office Bldg., 21st St. and Carey.	Memphis 3, Tenn., 229 Federal Bldg.	San Francisco 11, Calif., 306 Customhouse, 555 Battery St.
Chicago 4, Ill., 1150 McCormick Bldg., 332 S. Michigan Ave.	Miami 32, Fla., 36 Northeast 1st St.	San Juan, P. R., 2 Puerto Rican Reconstruction Administration Ground, Bldg., N.
Cincinnati 2, Ohio, 1404 Federal Reserve Bank Bldg.	Minneapolis 1, Minn., 401 2nd Ave. S.	Savannah, Ga., 218 U. S. Courthouse and Post Office Bldg., 125-29 Bull St.
Cleveland 14, Ohio, 410 Union Commerce Bldg., 925 Euclid Ave.	Mobile 10, Ala., 109-13 St. Joseph St.	Seattle 4, Wash., 809 Federal Office Bldg., 909 First Ave.
Columbia, S. C., Area 2-H Cornell Arms Bldg., Sumter and Pendleton Sts.	Montpelier, Vt., 79 Main St.	Shreveport, La., Belmont Bldg., 404 1/2 National St.
Columbus, Ohio, 307 Trautman Bldg., 209 S. High St.	Nashville, Tenn., 410 Nashville Trust Bldg.	Sioux Falls, S. Dak., Gas Co. Bldg., 114 S. Main Ave.
Dallas 2, Tex., Room 1114, 1114 Commerce St.	Newark, N. J., 1060 Broad St.	Spokane, Wash., 401 Columbia Bldg., 107 Howard St.
Davenport, Iowa, 604 Kahl Bldg., 3rd at Ripley St.	New Haven, Conn., 125 Temple St.	Springfield, Mass., 216 Hampden Bldg., 1634 Main St.
Decatur, Ill., Rm. 102-103 Decatur Club Bldg.	New Orleans 12, La., 333 St. Charles Ave.	Syracuse, N. Y., West Onondaga and South Salina Sts.
Denver 2, Colo., 142 New Customhouse, 19th and Stout Sts.	New York 4, N. Y., 2 W. 43rd St.	Tampa, Fla., 308 Wallace S Bldg. Annex, 608 Tampa St.
Des Moines 9, Iowa, 601 Securities Bldg., 418 7th St.	Norfolk, Va., 610 Duke St.	Toledo, Ohio, Chamber of Commerce Bldg., 218 Huron St.
Detroit 26, Mich., 1038 Federal Bldg., 230 West Fort St.	Oklahoma City 2, Okla., 102 Northwest Third.	Trenton, N. J., East State and Montgomery Sts.
Duluth 2, Minn., 204 U. S. P.O.	Omaha 2, Neb., 1319 Farnam St.	Tulsa 3, Okla., 304 Wright Bldg., 115 West Third St.
El Paso, Tex., C. of C. Bldg., 310 San Francisco St.	Peoria, Ill., 410 Fayette St.	Tulsa, N. Y., 115 S. Genesee.
Erie, Pa., Erie Commerce Bldg., 12th and State Sts.	Philadelphia 6, Pa., 1015 Chestnut St.	Wichita 2, Kan., 212 East Waterman St.
Evansville, Ind., Claremont Bldg., 127 Locust St.	Phoenix, Ariz., 450 East Adams St.	Wilmington, Del., 411 Pennsylvania Bldg., Front and French Sts.
Fargo, N. Dak., 207 Walker Bldg., 621 First Ave. N.		Worcester, Mass., 201 Dean Bldg., 107 Front St.
Fort Wayne 2, Ind., 507 Strauss Bldg., 809 South Calhoun St.		

Controlled Materials Plan Allotment & DO Symbols

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GOVERNMENT PROCUREMENT

Major Metal Products Bought by the Armed Forces and Where They Are Bought

These major products of the metalworking industry are bought by the military. Numbers at the right refer to the buying offices listed on the following pages. To sell any of these items write

A

Aerial bombs, AP, depth	13, 18
Aerial bombs, general, frag., etc.	13
Agricultural machinery and implements	2
Air conditioning and refrigeration equipment, 1, 2, 11, 15, 22, 30	
Aircraft assemblies, components, propellers	15, 17, 20
Airplanes	15, 17
Ammunition, artillery, complete	13, 18
Ammunition, artillery, components	4, 13, 18
Ammunition, small arms	4
Artillery, naval guns & mortars (cal. .60 and over)	5, 6, 7, 8, 18
Augers, earth, power operated	2

B

Bakery equipment	11
Beds, hospital	1
Bituminous mixing, paving, and related equip- ment	2
Boats and accessories	2, 15, 19
Boilers, railroad type	3
Bomb fuzes	13, 18
Bridges, fixed and floating	37

C

Cabinets, instrument	1
Cannisters, gas mask	34, 35, 36
Cars, rail, all types	3
Catapults, beaching gear	17
Cement handling and placing machinery and equipment	21
Chairs, dental	1
Clips, ammunition	6
Communication and related equipment 12, 15, 19, 20, 23, 26	
Component parts and subassemblies, attachments and accessories for metalworking machinery..	16
Compressors and pumps	16, 19, 21, 28
Computing devices, sights (except bomb sights)	4, 18
Concrete mixing, paving, placing, and related equipment	21
Containers and closures	11, 15, 20, 22, 24
Contractors' crawler carts, wagons, and trailers (full or half-track)	2
Contractors' jacks, supports for trench sidewalls, concrete forms, and related uses	21

the appropriate office. If your product is not listed here write the Central Military Procurement Information Office, Munitions Board, Pentagon, Washington 25, D. C.

Conveying, elevating and materials handling equipment	16, 21
Crushing, pulverizing, and screening machinery.	21
Cutlery, industrial	16
Cutting and forming tools for metal working machinery	16

D

Decontaminating equipment	34, 35, 36
Domestic water systems	21
Dredging machinery and components, except hulls	2

E

Electric distribution and control equipment 2, 16, 19, 20, 27, 28, 30	
Electric generators and motors	2, 16, 19, 28
Electroplating equipment	4-9 incl.
Engines, gas turbine and jet	17
Explosives, HE	13, 18

F

Files, rasps and other hand tools	16
Fire control equipment	4, 18
Fire fighting equipment	2, 15
Flamethrowers	34, 35, 36
Flares	13
Foundry equipment, except furnaces and ovens 16, 22	
Fuel burning equipment	2, 3
Furniture and fixtures (incl. shelving and lockers)	11, 16, 30

G

Gages, levels, micrometers, etc.	16
Graders and maintainers	21
Grenades and components	13
Gun mounts, etc. (except aircraft)	5, 14, 18

H

Heat treating equipment	4-9 incl.
Household electrical appliances	15, 16

I

Industrial furnaces, kilns, lehrs, and ovens.....	30
Identification plates, badges, emblems, tags, and military insignia	10
Instruments, dental	1
Insulated wire and cable	20, 23, 26, 27
Iron and steel products	16, 20

GOVERNMENT PROCUREMENT CONTINUED

J

Jigs, fixtures and metalworking accessories, except machine accessories 16

K

Kitchen utensils, tools and cutlery; and tableware, except flatware and hollow ware.... 11, 33

L

Landing vehicles (not tracked) 14
Landing vehicles, tracked 19
Launchers, rocket 5
Lighting fixtures 16, 20, 21, 27, 30, 31, 32
Lighting fixtures, automotive 14
Lighting fixtures, R. R. 3
Loaders, self-propelled, positive-feed 2
Locomotives, wheels and parts 3
Logging equipment 2
Lubrication equipment 19

M

Machine guns 5, 6
Machine tools 16
Map reproduction equipment 2
Materials handling equipment 16, 21, 25
Mechanical power transmission equipment, including bearings 16, 19, 20, 28, 30, 31, 32
Mess and galley utensils 11
Metal fabricated basic products 16
Metalworking machinery 16
Mines, aerial and naval 18
Mining machinery and equipment 2
Motor vehicles 14
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T

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W

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Well drilling machinery 2
Woodworking machinery 2
Wrenches, pliers, screwdrivers, etc. 16

X

X-ray equipment 1

Armed Forces Buying Offices

Numbers at left refer to purchased products in list on pages 345 and 346.

1. Armed Services Medical Procurement Agency
84 Sands Street
Brooklyn 1, N. Y.
2. Chicago Procurement Office
Corps of Engineers
226 West Jackson Boulevard
Chicago 6, Ill.
3. Commanding Officer
Central Procurement Agency
Marietta Transportation Corps Depot
Marietta, Pa.
4. Commanding Officer
Frankford Arsenal
Philadelphia, Pa.
5. Commanding Officer
Rock Island Arsenal
Rock Island, Ill.
6. Commanding Officer
Springfield Armory
Springfield, Mass.
7. Commanding Officer
Watertown Arsenal
Watertown, Mass.
8. Commanding Officer
Watervliet Arsenal
Watervliet, N. Y.
9. Commanding Officer
Detroit Arsenal
Center Line, Mich.
10. Commanding General
N. Y. Quartermaster Procurement Agency
111 East 16th St.
New York 3, N. Y.
11. Commanding General
Chicago Quartermaster Depot
Purchase Div.
1819 West Pershing Road
Chicago 9, Ill.
12. Commanding Officer
Signal Corps Procurement Agency
225 South 18th St.
Philadelphia 3, Pa.
13. Ordnance Ammunition Center
Joliet Arsenal
Joliet, Ill.
14. Ordnance Tank & Automotive Center
1501 Beard St.
Detroit, Mich.
15. Procurement Division
Air Materiel Command
Wright-Patterson Air Force Base
Dayton, Ohio
16. Officer in Charge
Navy Purchasing Office
Department of the Navy
Washington 25, D. C.
17. Bureau of Aeronautics
Department of the Navy
Washington 25, D. C.
18. Bureau of Ordnance
Department of the Navy
Washington 25, D. C.
19. Bureau of Ships
Department of the Navy
Washington 25, D. C.
20. Aviation Supply Officer
Aviation Supply Office
700 Robbins Ave.
Philadelphia 11, Pa.
21. Yards and Docks Supply Officer
Yards and Docks Supply Office
U. S. Naval Construction BN Center
Port Hueneme, Calif.
22. Officer in Charge
Navy Purchasing Office
111 East 16th St.
New York 3, N. Y.
23. Commanding Officer
Naval Supply Depot
Great Lakes, Ill.
24. Officer in Charge
Navy Purchasing Office
180 Montgomery St.
San Francisco, Calif.
25. Officer in Charge
Navy Purchasing Office
1206 South Santee St.
Los Angeles, Calif.
26. Electronic Supply Officer
Electronic Supply Office
Great Lakes, Ill.
27. Commander
U. S. Naval Shipyard
Portsmouth, N. H.
28. Supply Officer in Command
Naval Supply Depot
Mechanicsburg, Pa.
29. Officer in Charge
U. S. Navy Ship Store Office
29th and 3rd Ave.
Brooklyn 32, N. Y.
30. The Quartermaster General
Headquarters USMC
Washington, D. C.
31. Depot Quartermaster
MC Depot of Supplies
1100 South Broad St.
Philadelphia, Pa.
32. Depot Quartermaster
MC Depot of Supplies
100 Harrison St.
San Francisco, Calif.

- 33. Headquarters
Army Quartermaster Market Center
226 West Jackson Boulevard
Chicago 6, Ill.
- 34. Commanding Officer
Chicago Chemical Procurement District
226 West Jackson Boulevard
Chicago 6, Ill.
- 35. Commanding Officer
Dallas Chemical Procurement District
1114 Commerce Street
Dallas 2, Tex.
- 36. Commanding Officer
Chemical Corps Procurement Agency
Army Chemical Center
Edgewood, Md.
- 37. District Engineer
Pittsburgh District
Corps of Engineers
925 New Federal Bldg.
Pittsburgh 19, Pa.

Tips On Doing Business With The Government

1. Don't go to Washington unless requested to do so. Determine which purchasing agencies buy the products you have to offer and where these agencies are located. (An index of products bought by the Armed Forces and the offices which buy them are listed on pages 345-348 of this issue.)

2. Write the appropriate agencies, asking to be put on mailing lists to receive Invitations for Bids. A *Synopsis of Proposed Procurements* may be obtained from your local Dept. of Commerce field office. (A selective list of these proposed procurements appears weekly in THE IRON AGE.)

3. List in your letter the equipment, components and/or services on which you wish to bid, indicating your previous government or commercial contract experience.

4. Send to each agency with your letter a catalog, folder or descriptive list of your products.

5. Obtain specifications and plans from the appropriate office for the items on which you wish to bid.

6. Prepare your bids very carefully. At best, it takes a long time to correct a mistake on a submitted bid, and you could be badly stuck.

7. Comply fully with all specifications. Remember that all government purchases are inspected as to quantity and quality (including marking, packing and crating requirements) before acceptance.

8. Meet delivery schedules. They are

established in accordance with military requirements. Many government contracts contain a liquidated damages clause under which deductions are made from payments to the contractor in event of late deliveries.

9. Read your contract carefully to make sure your invoices are submitted promptly at the right time, and at the right place.

10. Allow ample time for security clearance when submitting bids on classified material. Try and keep the number of personnel who will have access to this material as small as possible.

11. Do not feel you have to bid on the entire quantity desired. In most cases you can bid only on the quantity you can handle.

12. If your firm falls into the small business category, subcontracts may well be your best bet. Dept. of Commerce publishes weekly a *Consolidated Synopsis of Contract Award Information*, which lists prime contractors to whom you may apply for subcontracts. (A selected listing appears each week in THE IRON AGE.)

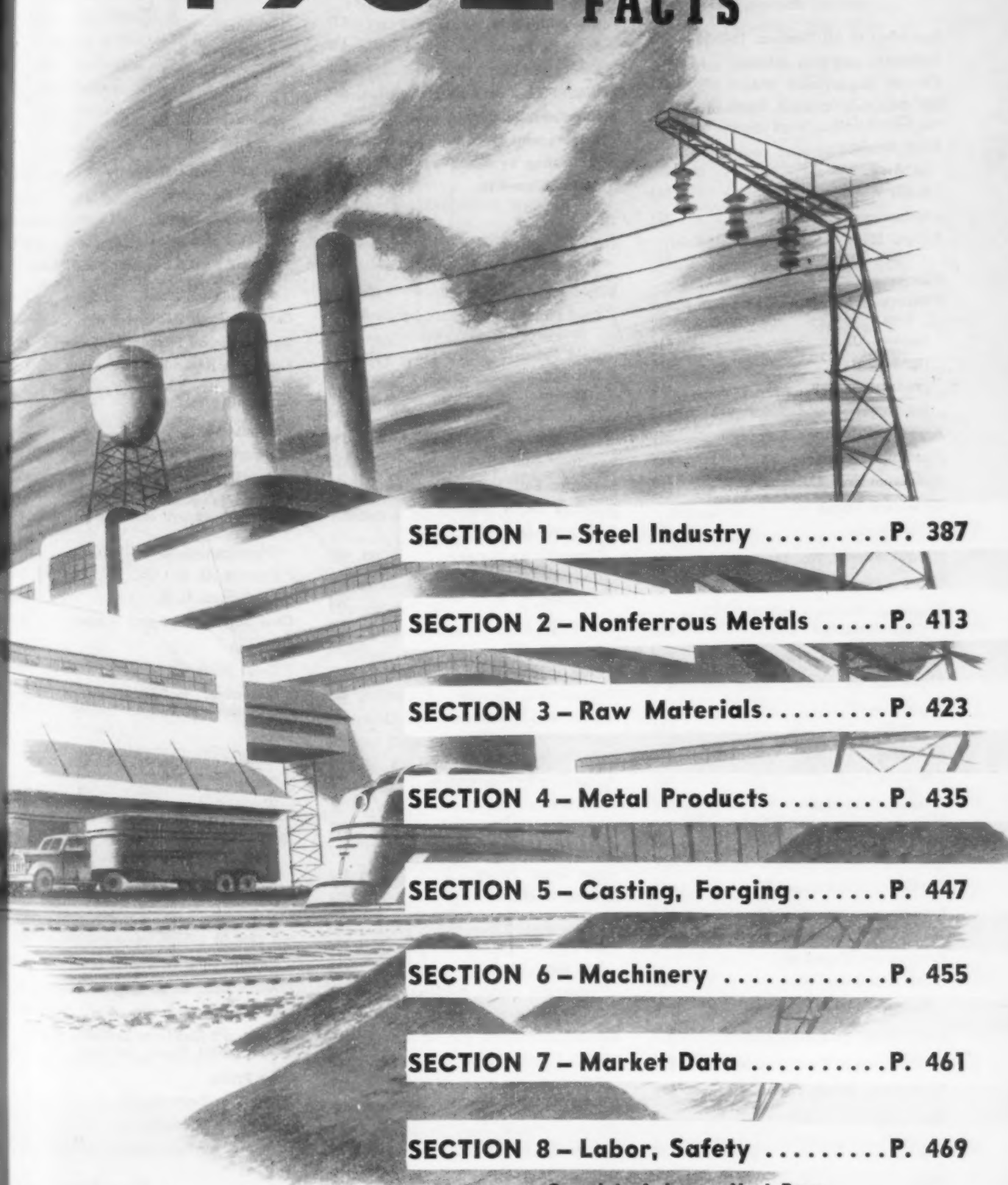
13. Don't be afraid of negotiated contracts. Competition on them is usually just as keen as for other types.

14. Consult with specialists in local procurement offices when in doubt about procedure.

15. Be especially careful about engaging outside agents to represent you in dealing with the government. The wrong kind can get you in a lot of expensive trouble.

The Iron Age

1952 METAL INDUSTRY FACTS



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SECTION 2 – Nonferrous MetalsP. 413

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SPOTLIGHTING

1951

IMPORTANT EVENTS OF THE YEAR

Markets and Prices

Feb. 1—Prices frozen (Jan. 25) by OPS. Tin at \$1.825 per lb. Mercury at \$225 per flask, many others at all-time peaks

Mar. 8—Senate subcommittee suggests end of tin stockpiling to bring down costs. A week later RFC takes over as sole U. S. buyer of foreign tin.

May 3—CPR 30, machinery pricing order issued May 4.

May 31—President Truman signs bill suspending 2¢ per lb copper tariff from April, 1951 until Feb. 15, 1953 or until price falls below 24¢.

June 7—Electrolytic nickel ceiling raised 6¢ to 59.58¢ per lb, f.o.b. New York, effective June 2.

July 5—Secondary and scrap aluminum prices rolled back June 30 following similar action on secondary lead and copper and brass scrap on June 26.

July 19—Stated needs for structural steel far exceed expected supply.

Aug. 23—Revision 1 to Suppl. Reg. 2 under CPR 30, special price order tailored to aid machine tool builders, issued Aug. 21.

Oct. 4—CPS lifts zinc and lead ceilings 2¢ per lb (Oct. 2) bringing prices to 19.5¢ and 19¢ per lb, respectively. Prices also fixed as maximum import prices; imports start dropping.

Nov. 29—Steel gray market drying up.

Production

Jan. 4—Korean developments dim new auto engine plans.

Jan. 25—Bethlehem Steel unwraps huge new expansion plan.

Feb. 1—Strip steel experimentally rolled from powder.

Feb. 8—Power steering for passenger cars introduced by Gemmer.

Detroit Steel's \$50 million expansion plan will double capacity.

Feb. 22—British steel industry taken over by Labor Government.

Mar. 1—U. S. Steel breaks ground (Mar. 1) for huge new Fairless works (1.8 million-ton integrated steel plant) at Morrisville, Pa.

Mar. 8—NPA announces (Feb. 28) machine tool pool order system, Order M-40, and M-41 dividing production between military and essential civilian customers. Orders carry DO priority, first for the industry.

April 5—First machine tool pool orders released.

May 24—Lone Star Steel to expand pipe output 350,000 tons per year.

June 28—Controlled Materials Plan on basic metals (steel, copper, aluminum) goes into effect July 1.

Aug. 2—National Production Authority slashes metal allotments for civilian goods.

Oct. 4—White House okays release of 30,000 tons of stockpile copper to help alleviate shortage. Action brings total withdrawal of copper to 55,000 tons. Lead stockpiling halted for rest of 1951 a few days previously.

Oct. 11—Dual-purpose defense-civilian plants proposed by GM's C. E. Wilson.

Oct. 18—Steelmakers suggest changes in Controlled Materials Plan for smoother operation.

Oct. 25—Aluminum engines become a possibility for the motor car industry.

Nov. 8—Jones & Laughlin taps first of 11 openhearth; Certificate of Necessity No. 1.

Nov. 15—Record production of 105.1 million net tons of steel during 1951 predicted by THE IRON AGE.

Nov. 15—Announce doubling of Kaiser's Chalmette expansion to 200,000 tons of aluminum per year. Capacity for 1953 becomes 1,471,750 tons. (Alcoa, 653,750; Reynolds, 394,000; Kaiser, 370,000; and Anaconda-Harvey, 54,000 tons.)

Nov. 22—Revision of M-41 announced Nov. 8 to virtually shut off shipment of unrated machine tools after Feb. 1, 1952.

Nov. 29—DeSoto opens new push-button engine plant.

Dec. 1—U. S. Steel's Fairless works 35 pct completed.

Dec. 13—Hudson announces a light car.

Dec. 20—DPA overrules objections of Interior and Justice Depts. in okaying Anaconda-Harvey aluminum plant.

Government announces special priority rating for machine tool builders. Puts them on equal basis with military and AEC priorities in obtaining materials and companies.

Labor

Aug. 30—Nonferrous unions strike (Aug. 27) tying up 95 pct of copper production, 80 pct of zinc production and 60 pct of lead production. Strike ended Sept. 7.

Nov. 27—United Steelworkers of America (CIO) opens wage negotiations with U. S. Steel.

Dec. 20—Philip Murray reveals (Dec. 17) that Steelworkers want 15¢ hourly wage increase. Fringe benefits estimated to total that much or more again. Washington claims no steel price increase possible beyond Capehart Amendment.

(Dates in bold face type above refer to date event was reported in THE IRON AGE.)

STEEL INDUSTRY PRICES, PRODUCTION, CAPACITIES

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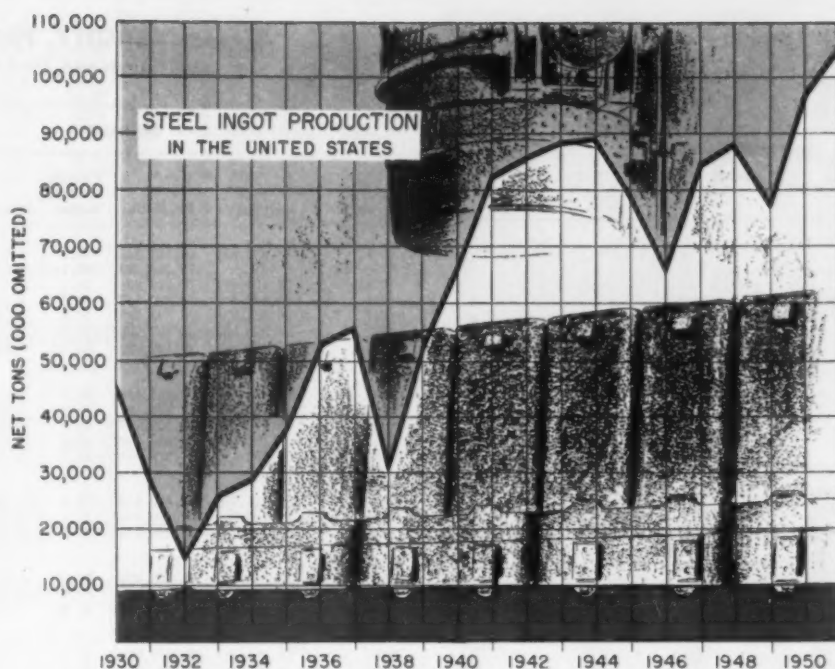
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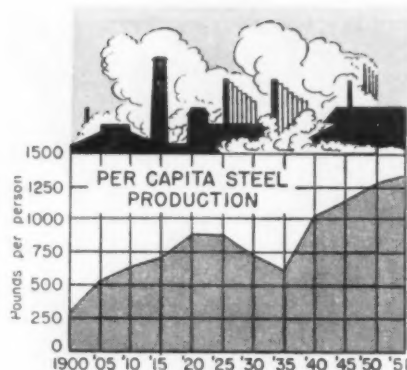
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STEEL INDUSTRY

Steel ingot production, by furnace type,
operating rates, per capita production.



PER CAPITA STEEL OUTPUT
Of the United States

Year	Pounds Per Person	Year	Pounds Per Person
1900	300	1925	878
1901	389	1926	921
1902	423	1927	848
1903	404	1928	858
1904	367	1929	1038
1905	535	1930	741
1906	613	1931	469
1907	602	1932	245
1908	354	1933	414
1909	593	1934	462
1910	633	1935	600
1911	585	1936	836
1912	734	1937	879
1913	712	1938	489
1914	531	1939	607
1915	716	1940	1015
1916	940	1941	1245
1917	976	1942	1278
1918	953	1943	1302
1919	739	1944	1298
1920	886	1945	1142
1921	408	1946	943
1922	725	1947	1179
1923	899	1948	1210
1924	745	1949	1045
		1950	1277
		1951	1362*

* Estimated.

STEEL CAPACITY, PRODUCTION AND RATES

Ingot and Steel for Castings, Net Tons

	Total Capacity	Openhearth		Bessemer		Electric*		Total	
		Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Capacity
1951†	104,229,650	93,359,601	88.7	4,811,648	4.6	7,051,999	6.7	105,253,219	101.0
1950	96,120,930	86,262,509	89.1	4,534,558	4.7	6,039,000	6.2	96,836,075	100.0
1949	94,243,460	79,340,157	84.2	4,243,172	4.5	5,057,141	5.4	88,640,470	94.1
1948	91,241,250	76,073,793	83.5	4,232,543	4.6	3,787,785	4.2	84,094,071	92.2
1947	81,890,560	60,711,963	74.1	3,327,737	4.1	2,563,024	3.1	66,602,724	81.3
1946	85,505,280	71,939,602	84.1	4,305,318	5.0	3,456,728	4.0	79,701,648	93.3
1945	93,854,420	80,363,953	85.6	5,039,923	5.4	4,237,724	4.5	89,641,600	95.6
1944	90,589,190	78,621,804	86.8	5,625,492	6.2	4,589,216	5.1	88,836,512	98.1
1943	88,886,550	76,501,957	86.1	5,553,424	6.3	3,978,550	4.5	86,031,931	96.8
1942	85,158,150	74,389,619	87.4	5,578,071	6.5	2,871,569	3.4	82,839,259	97.3
1941	81,619,496	61,573,083	75.4	3,708,573	4.5	1,701,030	2.1	66,982,686	82.1
1940	81,828,958	48,409,800	59.1	3,358,916	4.1	1,029,998	1.3	52,798,714	64.4
1939	80,158,638	29,080,016	36.3	2,106,340	2.6	565,634	0.7	31,751,990	39.6
1938	78,148,374	51,824,979	66.3	3,863,918	4.9	948,048	1.2	56,636,946	72.6
1937	78,184,300	48,780,463	62.4	3,673,472	4.7	866,064	1.1	53,499,999	68.4
1936	78,451,930	34,401,280	43.9	3,175,235	4.0	607,190	0.8	38,183,705	48.7
1935	76,128,416	26,354,838	34.6	2,421,840	3.2	405,246	0.5	29,181,924	37.4
1934	78,614,403	22,827,473	29.1	2,720,246	3.5	472,510	0.6	26,020,229	33.1
1933	78,780,913	13,336,210	17.0	1,715,925	2.2	270,766	0.3	15,322,901	19.5
1932	77,257,803	25,210,714	32.6	3,386,259	4.3	451,988	0.6	29,058,961	37.6
1931	72,985,406	39,255,073	53.7	5,639,714	7.7	688,634	0.9	45,583,421	62.5
1930	71,438,516	54,155,235	75.8	7,877,210	11.0	1,073,045	1.5	63,205,490	88.5
1929	68,840,912	49,407,631	71.9	7,414,618	10.8	907,232	1.3	57,729,481	83.9
1928	67,236,117	42,636,855	63.4	6,934,734	10.3	786,136	1.2	50,327,407	74.9
1927	67,750,035	45,575,015	67.3	7,785,716	11.4	747,282	1.1	54,069,014	80.0
1926	65,473,222	42,988,627	65.7	7,530,837	11.6	711,283	1.1	50,840,747	77.2
1925									

* Includes very small tonnages of crucible steel.

† Jan. 1, 1950 to June 30, 1950 capacity was 99,392,800 net tons. Beginning July 1, 1950 capacity was revised to 100,563,500 net tons.

† Preliminary

Source: American Iron & Steel Institute

STEEL INGOT PRODUCTION

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings, Net Tons; U. S. Only

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Jan.	4,656,029	4,302,172	4,531,172	5,115,195	4,288,212	2,852,540	1,685,665	1,157,745	2,276,596	3,279,473	3,474,353	5,398,326	1,984,815
Feb.	4,264,863	4,327,341	4,590,842	4,920,348	4,579,761	2,892,154	1,681,421	1,221,664	2,521,472	3,169,909	3,379,587	5,050,824	1,942,796
March	5,035,061	5,148,330	5,117,384	5,760,878	4,828,571	3,468,208	1,627,030	1,022,675	3,190,040	3,273,910	3,810,436	5,970,247	2,293,884
April	4,626,271	4,685,249	4,888,226	5,626,610	4,664,182	3,141,887	1,429,848	1,531,813	3,346,922	3,017,177	4,494,782	6,871,540	2,196,411
May	4,425,910	4,594,340	4,776,766	6,008,754	4,520,520	2,897,385	1,277,302	2,250,236	3,875,202	3,009,245	4,614,529	5,894,260	2,061,169
June	4,207,512	3,969,129	4,250,736	5,573,076	3,879,960	2,416,078	1,036,102	2,919,687	3,487,612	2,580,771	4,543,888	4,707,710	1,868,846
July	4,095,783	3,637,255	4,320,783	5,513,546	3,316,054	2,143,351	915,738	3,607,288	1,697,879	2,591,240	4,473,940	5,212,832	2,259,677
Aug.	4,492,374	3,971,467	4,744,291	5,614,144	3,473,898	1,949,462	961,153	3,260,279	1,574,649	3,331,770	4,782,442	5,580,683	2,903,055
Sept.	4,409,463	3,710,754	4,709,416	5,146,744	3,223,766	1,754,817	1,125,892	2,599,370	1,446,551	3,227,876	4,744,841	4,907,582	3,029,736
Oct.	4,591,053	3,764,573	5,279,460	5,154,063	3,055,972	1,805,653	1,233,957	2,373,729	1,689,272	3,590,945	5,182,430	3,881,819	3,554,912
Nov.	4,175,502	3,549,711	4,844,460	4,002,365	2,510,820	1,807,315	1,171,710	1,731,930	1,836,068	3,999,687	4,941,014	2,464,793	4,072,678
Dec.	3,906,230	3,604,731	4,562,175	3,299,786	2,246,742	1,477,529	977,389	2,047,780	2,239,126	3,511,702	5,056,843	1,685,273	3,751,253
Total	52,886,071	49,264,052	56,615,711	61,735,509	44,589,058	28,606,379	15,123,207	25,724,196	29,181,329	36,183,705	53,440,065	56,635,899	31,751,960
Jan.	3,663,004	5,764,723	6,928,085	7,112,106	7,424,522	7,592,603	7,204,312	3,872,887	7,222,612	7,480,878	8,197,390	7,941,797	8,843,167
Feb.	3,448,120	4,525,797	6,237,900	6,512,535	6,824,604	7,194,009	6,652,765	1,392,682	6,430,401	6,948,017	7,493,942	6,803,032	7,765,701
March	3,929,387	4,389,183	7,131,641	7,392,111	7,674,578	7,826,257	7,705,929	6,508,764	7,316,974	7,616,770	8,401,796	7,497,822	9,071,055
April	3,431,600	4,100,474	6,756,949	7,121,291	7,373,703	7,593,688	7,289,887	5,801,195	7,051,842	6,224,487	7,796,185	8,224,504	8,840,521
May	3,372,636	4,967,792	7,053,238	7,382,578	7,549,691	7,702,576	7,449,667	4,072,820	7,339,014	7,580,642	7,598,980	8,564,207	9,084,499
June	3,606,729	5,657,443	6,800,730	7,015,302	7,039,353	7,234,257	6,840,522	5,625,773	6,977,714	7,265,249	6,504,656	8,143,230	8,656,960
July	3,648,639	5,724,625	6,821,682	7,144,958	7,407,876	7,948,387	6,985,571	6,618,683	5,578,685	7,075,517	5,784,831	8,082,922	8,679,247
Aug.	4,341,726	6,186,383	7,000,957	7,227,655	7,586,464	7,498,913	5,735,317	6,924,522	6,991,152	7,446,834	6,722,771	8,242,174	8,733,502
Sept.	4,881,601	6,056,246	6,819,706	7,057,519	7,514,339	7,235,111	5,982,475	6,555,566	6,797,457	7,424,844	6,597,935	8,204,967	8,654,897
Oct.	6,223,126	6,644,542	7,242,683	7,579,514	7,814,117	7,620,885	5,596,776	6,951,742	7,570,152	7,996,985	8,267,347	8,752,686	9,096,000
Nov.	6,292,322	6,469,107	6,969,987	7,179,812	7,371,975	7,278,719	6,200,466	6,457,771	7,242,427	7,797,558	4,223,129	8,023,933	8,705,000
Dec.	5,958,893	6,495,357	7,163,999	7,304,540	7,255,144	7,336,170	6,057,937	5,760,501	7,375,641	7,780,779	7,728,224	8,355,311	9,012,444
Total	52,797,783	66,981,682	82,927,557	86,029,921	88,836,366	89,641,575	79,701,624	66,602,706	84,894,071	88,640,470	77,978,176	96,836,075	*105,253,219

† Preliminary.

* Estimate.

Source: American Iron & Steel Institute

Operating rates by steelmaking processes
... Alloy and stainless steel ingot output
... World Steel production by countries.

STEEL INDUSTRY

STEEL INDUSTRY OPERATING RATES

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings—Percent of Capacity; U. S. Only.

Percent of Capacity																									
1929 1932 1933 1936 1937 1938						1939 1940 1941 1942 1943 1944						1945 1946 1947 1948 1949 1950 1951†													
Jan.	88.56	25.88	17.76	52.46	81.32	29.14	Jan.	52.69	83.40	96.90	94.50	96.80	95.70	Jan.	88.80	49.60	93.20	93.60	100.4	84.0	99.9				
Feb.	92.21	26.62	20.75	54.61	84.26	31.59	Feb.	54.93	70.00	96.60	95.90	98.50	97.00	Feb.	90.80	19.80	91.90	93.00	101.6	89.2	97.1				
Mar.	97.48	24.98	15.68	57.54	89.93	33.67	Mar.	56.52	63.53	99.70	98.20	100.00	98.60	Mar.	95.00	83.30	94.40	95.30	102.9	88.8	102.4				
Apr.	98.32	22.67	24.26	70.09	90.24	33.70	Apr.	50.97	61.20	97.60	97.70	99.30	98.80	Apr.	92.80	77.50	93.90	90.40	98.6	100.6	103.1				
May	101.68	19.61	34.51	69.68	88.79	30.26	May	48.51	71.80	98.70	98.10	98.40	97.10	May	91.80	52.20	94.70	94.80	93.0	101.4	102.7				
June	97.36	16.42	46.24	70.85	74.47	23.33	June	53.57	81.50	98.20	96.30	94.80	94.10	June	87.10	74.40	92.90	93.00	82.2	99.8	100.9				
July	93.51	14.09	55.45	67.71	78.37	33.25	July	52.60	83.00	93.40	94.50	96.20	94.30	July	86.30	84.90	85.10	86.70	71.0	94.8	96.2				
Aug.	95.00	14.76	50.00	72.22	83.71	42.63	Aug.	62.45	89.50	95.70	95.40	98.30	94.10	Aug.	70.70	86.90	92.20	93.10	82.3	96.5	98.5				
Sept.	90.14	17.89	41.29	74.16	76.19	46.03	Sept.	72.68	90.60	96.40	96.40	100.70	94.00	Sept.	76.30	86.90	90.80	96.10	83.6	99.4	101.0				
Oct.	87.22	18.94	36.40	78.26	53.23	52.19	Oct.	89.52	96.10	99.00	100.00	101.20	95.60	Oct.	69.00	89.00	97.70	99.90	11.4	102.4	102.7				
Nov.	69.94	18.57	27.43	77.05	38.18	61.74	Nov.	93.46	96.60	98.30	97.80	98.60	94.30	Nov.	78.90	85.40	96.50	100.50	53.4	97.0	102.4				
Dec.	55.96	18.04	31.48	76.53	25.34	82.72	Dec.	85.91	94.10	98.10	96.60	94.20	92.60	Dec.	74.80	73.90	95.40	97.7	94.0	98.0	102.0*				
Average	88.76	19.67	33.52	68.45	72.33	36.60	Average	64.53	82.10	97.40	96.80	96.10	95.50	Average	83.50	72.50	93.00	94.1	81.1	96.9	101.0*				

* Estimated.

† Preliminary.

Source: American Iron & Steel Institute

ALLOY STEEL INGOT PRODUCTION

Other Than Stainless, by Grade, Net Tons

1951																			
9 Months																			
Nickel	94 663	158 089	108 062	408 401	322 058	200 317	205 285			Nickel	94 663	158 089	108 062	408 401	322 058	200 317	205 285		
Molybdenum	359 298	636 012	475 691	653 823	592 462	426 521	400 027			Molybdenum	359 298	636 012	475 691	653 823	592 462	426 521	400 027		
Manganese	210 654	302 101	264 898	244 678	213 955	168 405	510 010			Manganese	210 654	302 101	264 898	244 678	213 955	168 405	510 010		
Manganese-Molybdenum	207 949	251 819	204 653							Manganese-Molybdenum	207 949	251 819	204 653						
Chromium	1,048 485	1,183 107	768 917	1,001 738	880 101	655 885	616 900			Chromium	1,048 485	1,183 107	768 917	1,001 738	880 101	655 885	616 900		
Chromium-Vanadium	83 307	47 765	26 214							Chromium-Vanadium	83 307	47 765	26 214						
Nickel-Chromium	97 451	221 690	156 080	686 918	630 705	456 456	503 604			Nickel-Chromium	97 451	221 690	156 080	686 918	630 705	456 456	503 604		
Chromium-Molybdenum	629 954	544 280	313 195	489 931	347 867	384 571	343 147			Chromium-Molybdenum	629 954	544 280	313 195	489 931	347 867	384 571	343 147		
Nickel-Molybdenum	132 584	469 525	309 971							Nickel-Molybdenum	132 584	469 525	309 971						
Nickel-Chromium-Molybdenum—NE Steels	1 620 867	1 289 771	797 941	1 164 200	878 353	680 804	2 031 302			Nickel-Chromium-Molybdenum—NE Steels	1 620 867	1 289 771	797 941	1 164 200	878 353	680 804	2 031 302		
Nickel-Chromium-Molybdenum—All Other										Nickel-Chromium-Molybdenum—All Other									
Silico-Manganese	88 197	137 084	177 831	233 167	221 386	204 661	1 940 185			Silico-Manganese	88 197	137 084	177 831	233 167	221 386	204 661	1 940 185		
All Other	1 786 480	2 372 517	1 738 718	2 877 964	2 711 891	1 793 347				All Other	1 786 480	2 372 517	1 738 718	2 877 964	2 711 891	1 793 347			
Total	6 359 900	7 613 740	5 342 271	7 760 820	6 798 778	5 432 656	8 008 213			Total	6 359 900	7 613 740	5 342 271	7 760 820	6 798 778	5 432 656	8 008 213		
Percentage of alloy ingots to total ingot output	8.1	7.9	6.4	8.8	8.0	8.2	10.1			Percentage of alloy ingots to total ingot output	8.1	7.9	6.4	8.8	8.0	8.2	10.1		

* Included in "All Other."

Source: American Iron & Steel Institute

WORLD STEEL PRODUCTION

Ingots and Steel for Castings, Thousands of Net tons

Compiled by THE IRON AGE from the United Nations Bulletin of Statistics, Chambre Syndicale de la Siderurgie Francaise, British Iron and Steel Federation and the American Iron and Steel Institute.

	1951*	1950†	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940
Australia	1 435	1 596	1 309	1 425	1 373	1 164	1 505	1 703	1 822	1 901	1 835	1 439
Austria	1 483	1 044	920	713	394	207	189					
Belgium	5 450	4 155	4 242	4 316	3 181	2 506	805	670	1 834	1 518	1 782	2 086
Brazil	890	834	671	545	426	379	227	243	205	176	170	156
Canada	3 500	3 384	3 186	3 159	2 902	2 293	2 803	2 930	2 872	2 986	2 823	2 174
Czechoslovakia	3 600*	3 190*	2 756*	2 910*	2 520	1 843	1 045	2 778	2 831	2 619	2 859	2 006
France	10 720	9 537	10 086	7 964	6 336	4 859	1 822	3 408	5 651	4 947	4 751	4 864
Germany	14 170*	13 361*	10 090*	6 127*	4 739*	3 604*	5 500	28 481	33 706	31 684	25 804	23 732
Hungary	1 320*	1 100*	882*	794*	658	389	142	768	856	865	861	827
India	1 630	1 610	1 517	1 237	1 346	1 373	1 426	1 485	1 516	1 452	1 531	1 399
Italy	3 190	2 583	2 265	2 342	1 674	1 269	436	1 136	1 905	2 130	2 275	2 487
Japan	6 890	5 332	3 352	1 916	1 041	606	1 177	7 032	9 676	8 760	8 349	8 288
Luxembourg	3 270	2 702	2 507	2 705	1 888	1 426	291	1 389	2 368	1 720	1 376	1 138
Mexico	390	390	380	268	353	277	201	199	194	104	104	104
Poland	3 080*	2 750*	2 539*	2 116*	1 731	1 344	546	755	870			1 600
Saar	2 795	2 092	1 936	1 922	780	317						
South Africa	917	830	699	750	660	568	594	541	462	370	370	396
Spain	1 601	900	793	604	581	656	617	546	721	663	633	766
Sweden	1 601	1 587	1 511	1 270	1 311	1 335	1 327	1 320	1 338	1 354	1 275	1 280
United Kingdom	17 640	18 240	17 255	16 682	14 246	14 220	13 243	13 599	14 595	14 495	13 790	14 527
U.S.S.R.	34 000*	29 800*	23 500*	18 700*	14 700*	13 400*	12 300*	13 300	12 200	10 900	16 600	20 130
United States	105 253	96 838	77 978	88 640	84 894	68 603	79 702	89 642	88 837	86 032	82 839	66 983
Totals†	224 700*	204 348*	173 386*	167 107*	147 186*	120 345*	125 898*	171 905	184 461	174 676	169 627	156 982

* Estimated.

† Revised.

‡ British, French and United States Zones.

† Includes misc. production not listed by countries.

STAINLESS STEEL

Ingot Production, Net Tons

First 9 mos.									
Type	1951	1950	1949	1948	Type	1951	1950	1949	1948
301	17 903	61 425	34 150	61 565	302	80 327	169 444	94 956	145 426
302	117	1 245	397	1 623	302B	17 788	19 750	9 178	14 633
303	73 746	129 447	70 711	100 966	304	4 694	3 208	1 973	2 947
308	3 265	3 816	2 593	4 902	309	8 601	7 717	4 958	5 663
310	22 664	32 704	20 290	28 622	316	39 650	14 054	5 575	7 526
321	15 097	35 982	26 710	33 346	347	17 423	14 364	10 941	9 266
All Other					Total	301 275	493 156	282 070	416 387

403	12,038	7,204	5,613	6,423
405	3,082	2,843	2,179	4,126
406	2,944	2,101	1,622	2,580
410	35,980	29,369	16,172	25,614
414	2,322	4,584	2,021	5,562
416	25,154	27,480	9,348	16,264
420	4,482	7,360	3,260	4,852
430	268,764	221,301	122,353	122,437
430F	1,513	2,177	885	1,526
431	3,148	2,199	1,370	1,120
440A	872	1,854	1,359	1,433
440B	704	475	567	218
440C	2,609	1,782	960	1,220
442	438	404	296	318
443	9	8		33
446	3,585	3,192	2,608	2,573
All Other	3,058	6,437	2,408	4,692

STEEL INDUSTRY

Steel shipments and production for sale
... Distribution by consuming industries.

SHIPMENTS AND PRODUCTION FOR SALE OF STEEL PRODUCTS

By Companies Who Made More Than 98 Pct of Total Rolled Steel Produced in the U. S.

Steel Products	1951-9 Months		1950		1949		1948		1947		1946		1945	
	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Production for Sale (N.T.)	Pct of Total
Ingot	958,280	1.6	888,324	1.2	2,261,285	3.9	3,150,754	4.8	2,968,748	4.7	1,949,624	4.0	4,847,487	8.0
Blooms, slabs, billets, tube rounds, sheet bars	1,698,988	2.9	2,233,832	3.1	118,533	0.2	75,252	0.1	160,989	0.3	227,033	0.5	448,963	0.7
Skelp	109,699	0.2	123,388	0.2	570,397	1.0	610,348	0.9	667,282	1.1	679,998	1.4	1,247,629	2.0
Wire rods	634,468	1.1	816,555	1.1										
Structural shapes (heavy)	3,650,549	6.2	4,197,653	5.8	3,669,503	6.3	4,255,355	6.5	4,436,129	7.0	3,474,294	7.1	4,586,652	7.5
Steel piling	315,411	0.5	342,277	0.5	301,824	0.5	299,537	0.5	324,224	0.5	205,313	0.4	365,999	0.6
Plates	*5,852,363	9.9	5,677,094	7.9	5,759,065	9.9	7,000,199	10.6	6,345,216	10.1	4,152,181	8.5	5,986,535	9.8
Rails—Standard (over 60 lbs.)	1,278,749	2.2	1,705,243	2.4	1,772,734	3.0	1,976,520	3.0	2,207,146	3.5	1,790,311	3.7	1,708,464	2.8
Rails—All other	94,253	0.2	116,389	0.2	117,154	0.2	214,880	0.3	211,900	0.3	144,999	0.3	194,302	0.3
Joint bars	100,113	0.2	113,676	0.2	118,559	0.2	137,139	0.2	173,923	0.3				
Tie plates	337,490	0.6	416,258	0.6	373,337	0.6	489,434	0.8	504,779	0.8	624,299	1.3	675,735	1.1
Track spikes	124,279	0.2	138,732	0.2	95,345	0.2	145,830	0.2	163,746	0.3	146,194	0.3	171,113	0.3
Wheels (rolled or forged)	296,856	0.5	268,662	0.4	285,733	0.5	337,376	0.5	356,873	0.6	252,308	0.5	268,165	0.4
Axles	167,708	0.3	130,601	0.2	159,628	0.3	215,905	0.3	185,019	0.3	130,461	0.3	201,553	0.3
Hot rolled bars (including light shapes)	*6,605,975	11.2	8,017,465	11.1	6,416,102	11.0	8,123,753	12.3	7,983,848	12.7	6,397,137	13.1	7,405,401	12.2
Hot rolled bars—Reinforcing	1,413,521	2.4	1,674,079	2.3	1,572,588	2.7	1,541,966	2.3	1,452,908	2.3	1,189,829	2.4	1,892,351	3.1
Cold finished bars	1,431,413	2.4	1,624,845	2.2	1,213,052	2.1	1,593,967	2.4	1,645,503	2.6	1,512,816	3.1	1,442,163	2.4
Tool steel bars	129,611	0.2	89,863	0.1	57,395	0.1	86,376	0.1	87,279	0.1	96,020	0.2	153,953	0.3
Standard pipe	2,188,227	3.7	2,599,818	3.6	2,000,445	3.6								
Oil country goods	1,387,848	2.4	1,692,821	2.3	1,365,982	2.3								
Line pipe	2,183,806	3.7	3,668,511	5.1	2,534,423	4.4	6,881,549	10.4	6,117,884	9.7	4,655,505	9.5	5,674,878	9.4
Mechanical tubing	725,479	1.2	743,892	1.0										
Pressure tubing	226,684	0.4	248,798	0.3	944,370	1.7								
Wire—Drawn	2,425,232	4.1	2,867,476	4.0	2,138,878	3.7	2,673,278	4.1	2,590,963	4.1	1,933,124	4.0	2,284,511	3.7
Wire—Nails and staples	645,480	1.1	874,470	1.2	731,356	1.3	859,540	1.3	799,436	1.3	636,632	1.3	792,234	1.3
Wire—Barbed and twisted	168,250	0.3	237,604	0.3	215,047	0.4	254,629	0.4	256,991	0.4	207,610	0.4	279,760	0.5
Wire—Woven wire fence	318,050	0.5	483,920	0.7	358,162	0.6	399,457	0.6	407,295	0.6	383,230	0.8	296,506	0.5
Wire—Bale ties	61,074	0.1	83,831	0.1	42,828	0.1	113,892	0.2	119,917	0.2	99,993	0.2	81,554	0.1
All other wire products													39,118	0.0
Fence posts													67,553	0.1
Black plate	740,142	1.3	562,077	0.8	452,041	0.8	638,666	1.3	820,997	1.3	906,337	1.9	474,258	0.8
Tin and terne plate—Hot dipped	1,270,145	2.2	1,911,568	2.7	1,899,355	2.9	2,167,912	3.3	2,093,149	3.3	1,924,657	3.9		
Tin plate—Electrolytic	2,145,843	3.6	2,840,599	3.9	1,993,468	3.4	1,784,288	2.7	1,617,659	2.6	909,173	1.9	3,565,885	5.9
Sheets—Hot rolled	6,235,514	10.6	7,804,948	10.8	6,192,610	10.7	7,786,056	11.8	7,891,798	12.5	5,956,633	12.2	8,006,944	13.1
Sheets—Cold rolled	7,300,271	12.4	9,338,312	12.9	6,886,946	11.8	6,867,775	10.4	5,504,578	8.7	4,075,574	8.4	3,024,960	5.0
Sheets—Galvanized	1,536,294	2.6	2,262,041	3.1	1,755,067	3.0	1,643,337	2.5	1,609,881	2.5	1,462,053	3.0	1,621,835	2.7
Sheets—All other coated	197,406	0.3	237,941	0.3	151,118	0.3								
Sheets—Enameling	144,596	0.2	256,766	0.4	162,815	0.3								
Electrical sheets and strip	579,511	1.0	716,592	1.0	*379,180	0.6								
Strip—Hot rolled	1,643,335	2.8	2,330,783	3.2	1,674,818	2.9	1,662,787	2.5	1,740,085	2.7	1,363,812	2.8	1,768,224	2.9
Strip—Cold rolled	1,572,971	2.7	1,894,589	2.6	1,465,297	2.5	1,783,383	2.7	1,613,005	2.6	1,282,146	2.6	1,322,066	2.2
All other					7,570	0.0					6,266	0.0	56,408	0.0
Total steel products	58,927,691	100.0	72,232,292	100.0	58,104,010	100.0	65,973,138	100.0	63,057,150	100.0	48,775,532	100.0	60,942,979	100.0

* Electrical sheets only in 1949.

STEEL DISTRIBUTION BY CONSUMING INDUSTRIES

In Thousands of Net Tons

	Yearly Average 1947-44 Inc.		1945		1946		1947		1948		1949		1950*		1951†	
	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct
Agriculture	1,565	2.4	2,426	4.3	2,100	4.3	2,422	3.84	2,743	4.16	2,644	4.55	3,094	4.28	3,331	4.22
Aircraft	5,557	8.8	5,621	9.7	32	0.06	44	0.07	39	0.06	44	0.08	56	0.08	163	.21
Automotive					7,379	15.1	10,292	16.32	11,330	17.17	11,890	20.45	15,746	21.80	14,610	18.98
Construction and Maintenance	8,379	13.3	8,353	14.7	8,130	16.7	10,039	15.92	10,157	15.40	10,020	17.25	12,363	17.12	14,295	18.05
Containers	4,216	6.7	4,333	7.6	4,749	9.7	5,598	8.87	5,844	8.85	5,026	8.65	6,409	8.67	7,354	9.29
Machinery, Tools	3,191	5.1	4,739	8.3	4,438	9.1	5,648	8.96	5,337	8.09	4,274	7.36	5,812	8.05	6,979	8.93
Oil, Gas, Water, Mining	2,221	3.5	2,670	4.7	2,480	5.1	3,833	6.08	5,080	7.70	5,455	9.39	6,619	9.16	6,394	8.05
Pressing, Forming, Stamping	2,809	4.5	3,800	6.7	3,127	6.4	3,770	5.98	4,256	6.45	3,124	5.38	4,601	6.37	4,803	6.06
Railroads	5,422	8.6	5,268	9.3	4,764	9.8	5,999	9.51	5,866	8.89	4,038	6.95	4,790	6.64	6,820	8.83
Shipbuilding	9,657	15.3	3,374	5.9	320	.64	373	.59	716	1.09	722	1.24	355	.49	952	1.20
Exports	7,701	12.2	3,793	6.7	3,378	6.9	4,639	7.36	3,578	5.42	3,798	6.54	2,783	3.83	2,887	3.63
All Others	12,212	19.4	12,689	22.2	7,679	16.2	10,402	16.50	11,029	16.72	7,077	12.18	9,560	13.29	10,483	13.23
Total	63,490	99.8	56,946	100.0	48,776	100.00	63,057	100.00	65,973	100.00	58,104	100.00	72,233	100.00	79,021	100.00

* Revised. † Estimate

Data by American Iron & Steel Institute: Compilation, THE IRON AGE

Stainless and alloy steel shipments . . .
Canadian capacity, production, shipments

STEEL INDUSTRY

STAINLESS STEEL SHIPMENTS

Finished and Semifinished Products, Net Tons

PRODUCTS	1951—First 9 Months		1950		1949		1948	
	Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total
Ingot	13,952	3.5	16,904	3.8	16,292	6.1	19,916	6.1
Blooms, Billets, Slabs, etc.	13,665	3.4	10,405	2.3				
Plates	12,918	3.2	12,098	2.7	8,670	3.2	12,071	3.7
Sheets—Hot Rolled	29,838	7.5	27,428	6.1	15,515	5.8	19,510	6.0
Sheets—Cold Rolled	74,036	18.6	109,279	24.3	54,780	20.5	77,841	24.0
Strip—Hot Rolled	5,862	1.5	7,750	1.7	5,741	2.2	3,883	1.2
Strip—Cold Rolled	147,249	36.9	171,968	38.3	105,072	39.3	113,414	34.9
Bars—Hot Rolled	31,177	7.8	28,598	6.4	19,852	7.3	26,419	8.1
Bars—Cold Finished	30,741	7.7	30,848	6.9	17,928	6.7	26,784	8.2
Pipes and Tubes	12,299	3.1	11,308	2.5	7,336	2.7	9,689	3.0
Wire Rods	3,562	0.9	1,526	0.3	361	0.1	136	0.1
Wire Drawn	23,351	5.9	21,048	4.7	15,696	5.9	14,031	4.3
All Other (Incl. Shapes)	118	0.03	222	0.05	634	0.2	1,272	0.4
Total	398,768	100.0	449,380	100.0	267,677	100.0	324,966	100.0

Source: American Iron & Steel Institute

ALLOY STEEL SHIPMENTS

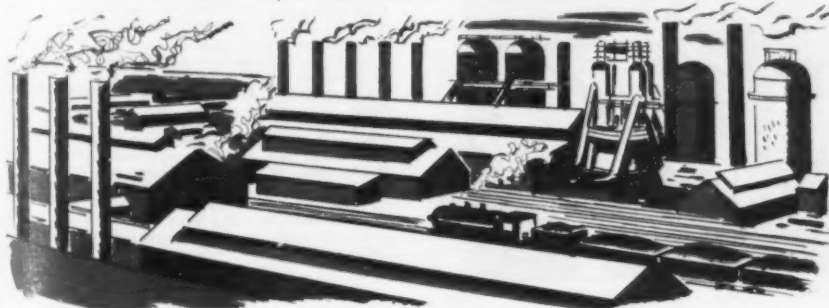
Except Stainless Steel and Types 501 and 502, Net Tons*

Products	1951—First 9 Months			1950		1949		1948	
	Full Alloy Shipments	Hi-Str. Low Alloy Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total
Ingot	178,785	7	4.2	127,803	2.7				
Blooms, billets, slabs, tube rounds, etc.	425,176	55	9.9	445,731	9.4	374,150	10.9	489,536	10.5
Structural shapes (heavy)	3,844	45,724	1.2	51,126	1.1	40,606	1.2	64,621	1.4
Galvanized sheets		907	0.0	26,191	0.5				
Plates (sheared and universal)	121,152	177,792	7.0	204,969	4.3	153,220	4.5	225,450	4.8
Rails—standard (over 60 lbs)	156		0.0	359	0.0	120	0.0	76	0.0
Rails—all other	82		0.0	190	0.0	55	0.0	33	0.0
Bars—hot rolled	1,686,855	13,947	39.8	1,973,198	41.8	1,459,744	42.6	1,900,414	40.6
Bars—cold finished	250,351		5.8	260,037	5.5	173,420	5.1	217,833	4.7
Bars—tool steel	103,919		2.4	71,454	1.5	44,508	1.3	68,210	1.4
Oil Country, line pipe	149,020		3.5	222,412	4.7				
Mechanical tubing	219,887		5.1	211,810	4.5	353,248	10.3	415,758	8.9
Pressure tubing	16,961		0.4	23,355	0.5				
Electrical sheets and strip	472,276		11.0	606,060	12.8				
Wire rods	12,183		0.3	15,518	0.3	8,081	0.2	282	0.0
Wire drawn	39,161		0.9	38,431	0.8	26,286	0.8	34,485	0.7
Sheets—hot rolled	23,237	208,389	5.4	269,253	5.7	446,263	13.0	712,393	15.2
Sheets—cold rolled	2,615	85,665	2.1	111,059	2.4	223,210	6.5	349,756	7.5
Strip—hot rolled	16,909	13,230	0.7	45,987	1.0	54,354	1.6	90,364	1.9
Strip—cold rolled	16,770	5,278	0.5	18,661	0.4	66,840	1.9	103,405	2.2
Wheels (car, rolled steel)	140		0.0	166	0.0	93	0.0	23	0.0
Axles	404		0.0	612	0.0	550	0.0	942	0.0
All other	28	2,935	0.1	950	0.0	3,180	0.1	7,685	0.2
Total	3,739,971	553,931	100.0	4,725,332	100.0	3,427,928	100.0	4,681,066	100.0

* 1948-1949 data includes high-strength low-alloy steels.

Source: American Iron & Steel Institute

For steel used in automobile, appliances, etc., see
Section 4. Steelmaking raw materials are in Section 3.



CANADIAN STEEL OUTPUT

Ingot Capacity and Operating Rates

Year	Ingot Capacity		Steel Ingot Output		Percent of Capacity
	Capacity	Output	Capacity	Output	
1923	940,475	33,213	973,688		
1924	700,196	28,576	728,772		
1925	836,016	21,100	856,116		
1926	877,917	37,338	915,255		
1927	972,079	44,475	1,016,554		
1928	1,332,801	50,058	1,382,859		
1929	1,466,688	78,562	1,545,250		
1930	1,072,321	60,830	1,133,151		
1931	744,605	41,501	786,106		
1932	349,843	25,684	375,507		
1933	441,346	17,830	459,176		
1934	827,041	23,116	850,157		
1935	1,016,814	35,123	1,051,937		
1936	1,211,334	38,337	1,249,671		
1937	1,496,575	74,652	1,571,137		
1938	1,238,078	56,636	1,294,714		
1939	1,266,056	60,997	1,327,053		
1940	2,177,973	77,899	2,255,872		
1941	2,578,063	123,250	2,701,313		
1942	2,942,921	178,440	3,121,361		
1943	2,848,235	148,743	2,996,978		
1944	2,878,407	146,003	3,024,410		
1945	2,747,206	134,117	2,881,323		
1946	2,253,437	81,194	2,334,631		
1947	2,854,532	90,634	2,945,166		
1948	3,089,027	112,629	3,201,656		
1949	3,089,368	97,562	3,186,930		
1950	3,298,068	86,063	3,381,131		
1951: Jan.	299,410	10,234	309,653		
Feb.	271,222	10,158	281,380		
Mar.	304,201	10,545	314,826		
Apr.	301,704	10,241	312,005		
May	302,928	10,384	313,312		
June	293,664	9,851	293,515		
July	266,645	7,956	274,802		
Aug.	277,931	8,873	286,804		
Sept.	257,880	10,350	268,230		
1951*	3,380,000	120,000	3,500,000		

* Estimated.

CANADIAN STEEL CAPACITY

Year	Ingot Capacity		Steel Ingot Output		Percent of Capacity
	Capacity	Output	Capacity	Output	
1936	2,346,000	1,211,334			51.6
1937	2,346,000	1,496,575			63.7
1938	2,346,000	1,238,078			52.7
1939	2,346,000	1,266,056			53.9
1940	2,667,000	2,177,973			81.6
1941	2,964,000	2,578,063			86.9
1942	3,172,000	2,942,921			92.7
1943	3,257,500	2,848,235			87.4
1944	3,338,200	2,878,407			86.2
1945	3,358,600	2,767,206			81.7
1946	3,358,600	2,253,437			67.0
1947	3,245,000	2,854,532			87.9
1948	3,490,000	3,089,027			88.5
1949	3,598,000	3,089,368			84.1
1950	3,672,500	3,298,068			89.8
1951*	3,630,900	3,380,000*			93.0

* December estimated.

CANADIAN FINISHED STEEL

Production and Shipments, Net Tons

Year	Carbon Steel Shapes		Alloy Steel Shapes	
	Production	Shipments*	Production	Shipments*
1946	2,300,088	2,298,968	75,442	73,180
1947	3,042,727	2,343,688	117,684	111,775
1948	3,421,669	2,475,577	153,595	147,323
1949	3,558,507	2,604,864	109,735	103,307
1950	4,117,163	2,703,692	137,859	129,180
1951:				
Jan.	391,990	282,894	11,916	11,713
Feb.	365,128	232,466	13,602	12,135
Mar.	411,010	255,727	11,115	11,042
Apr.	401,381	254,103	13,585	11,328
May	435,649	270,602	13,288	13,297
June	380,244	251,270	14,287	12,510
July	346,955	229,859	14,720	12,774
Aug.	376,016	232,367	11,583	13,018

Total:
8 Mos. 3,111,141 1,984,620 106,672 100,402

* Excluding shipments to members of the industry for further conversion. Source of above three tables: Dominion Bureau of Statistics.

STEEL INDUSTRY

Fabricated structural steel bookings . . .
IRON AGE finished steel composite price.

FABRICATED STRUCTURAL STEEL

Estimated Bookings, Net Tons

Month	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Jan.	227,760	224,940	187,380	208,800	195,000	207,900	256,025	238,800	150,000	48,400	96,239	91,594	64,306	120,364
Feb.	243,360	228,200	194,320	208,800	240,000	265,650	250,635	267,600	150,800	82,000	67,953	75,294	75,841	140,943
March	290,160	218,420	225,550	237,600	232,500	257,950	334,565	236,800	178,800	64,400	92,409	105,537	112,325	108,828
April	246,480	208,640	253,310	252,000	262,500	234,850	313,775	222,800	284,800	64,800	59,096	121,552	95,330	112,186
May	180,960	192,340	229,020	266,400	232,500	308,000	321,475	279,200	152,400	90,800	54,726	78,608	60,449	147,291
June	165,360	202,120	284,540	262,800	225,000	296,450	324,170	253,600	172,400	66,800	106,476	122,603	120,690	132,387
July	162,240	215,160	270,660	248,400	341,250	296,450	329,175	270,000	159,600	69,200	72,531	75,257	65,957	199,057
Aug.	184,080	189,080	263,720	284,400	270,000	354,200	340,725	252,000	124,000	78,800	101,832	95,489	102,859	110,867
Sept.	168,480	208,640	270,660	212,400	262,500	319,550	297,990	155,600	194,400	111,200	76,250	86,586	90,161	119,138
Oct.	159,120	208,640	298,420	230,400	268,750	257,950	319,550	209,200	109,200	74,400	67,119	84,723	102,700	130,908
Nov.	171,600	260,800	239,430	219,600	236,250	242,550	212,135	151,200	90,800	51,600	73,180	89,340	91,693	121,697
Dec.	249,600	247,760	249,840	255,600	262,500	248,400	297,605	152,800	97,600	145,600	103,931	66,196	66,235	168,542
Total	2,449,200	2,604,740	2,966,850	2,887,200	3,048,750	3,287,900	3,587,825	2,789,600	1,780,800	948,000	975,742	1,052,779	1,068,603	1,609,516
Mo. av.	204,100	217,062	247,238	240,600	254,063	273,992	298,819	224,133	156,733	79,000	81,312	87,732	89,050	134,085

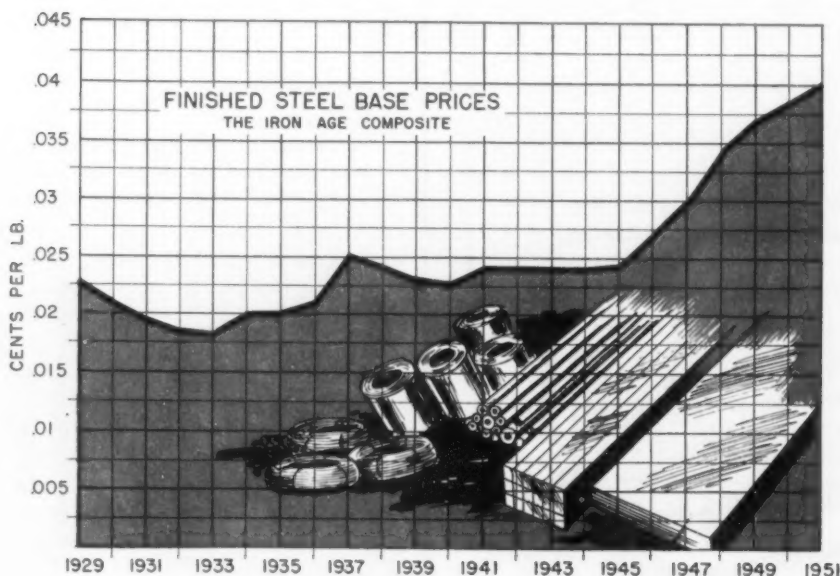
Month	1937	1938	1939	1940	1941	1942	1943†	1944†	1945†	1946	1947†	1948	1949	1950	1951
Jan.	153,606	80,320	101,712	81,683	281,235	183,387	50,172	45,109	51,678	235,817	138,985	201,267	160,377	147,275	301,372
Feb.	101,710	57,144	82,719	98,682	173,559	228,686	34,657	37,477	62,556	132,707	184,959	162,181	134,810	146,695	256,746
March	206,321	84,257	95,085	128,321	208,072	248,319	32,009	27,636	79,730	173,871	195,020	267,919	186,498	236,111	297,517
April	158,471	91,158	118,309	73,780	218,018	313,953	50,726	61,498	97,186	128,671	204,901	192,393	122,825	191,183	337,026
May	122,939	77,322	156,848	126,815	179,884	161,039	32,020	34,840	52,982	165,290	145,237	175,646	146,705	237,476	268,166
June	175,552	99,699	111,594	109,744	246,910	184,516	79,409	56,239	104,283	131,010	132,667	198,906	122,325	333,000	207,966
July	158,341	96,013	114,058	194,940	214,756	125,243	56,712	90,043	77,760	137,241	199,581	216,540	157,264	341,952	222,540
Aug.	124,697	106,772	100,849	122,468	158,658	80,605	37,563	44,740	97,682	165,590	169,802	212,139	123,068	326,586	212,730
Sept.	132,432	92,469	121,357	225,494	158,782	68,520	61,659	51,133	139,420	114,295	176,353	220,191	149,710	317,225	198,187
Oct.	62,267	154,756	118,841	240,942	128,658	50,946	59,282	80,521	124,707	142,565	200,113	201,055	196,563	295,391	182,894
Nov.	132,835	153,084	99,316	141,945	164,043	48,637	34,093	62,437	117,755	102,399	167,440	173,415	128,473	308,193	175,000*
Dec.	99,070	163,445	84,363	203,124	146,379	67,600	35,282	37,004	108,048	96,601	181,651	209,240	156,263	294,492	175,000*
Total	1,628,641	1,256,639	1,305,049	1,748,144	2,296,954	1,762,453	563,584	628,877	1,114,087	1,726,057	2,096,709	2,432,892	1,784,981	3,165,579	2,885,145*
Mo. av.	135,720	104,720	108,754	145,679	191,413	146,871	46,965	52,406	92,841	143,838	174,726	202,741	148,748	263,798	240,429*

Years 1910-1932 incl. Dept. of Commerce records; years 1933-1949 incl. A. I. S. C. records.
† The tonnages shown for 1946 to 1942 inclusive 1946, 1947, 1948 and 1949 are estimated for the entire industry; for the years 1943, 1944 and 1945, they are on basis of tonnage actually reported to the institute. It is estimated that these reporting companies in 1943, 1944 and 1945 represented 80 pct of the total industry for the base years of 1923-1925.
* Estimated. † Tonnages for 1947 and later years are shown on revised base. Base=1947 U. S. Census of Manufactures, adjusted to eliminate items not reportable to the Institute.
Source: American Institute of Steel Construction

THE IRON AGE FINISHED STEEL COMPOSITE PRICE

Current Series, 1929 to 1950, Cents Per Pound

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1945	1946	1947	1948	1949	1950	1951	
Jan.	2.278	2.229	1.991	1.852	1.830	1.958	2.065	2.076	2.323	2.584	2.354	2.305	2.412	2.464	2.877	3.193	3.720	3.837	4.131	
Feb.	2.278	2.212	1.996	1.843	1.812	1.958	2.065	2.065	2.323	2.581	2.354	2.305	2.427	2.555	2.884	3.125	3.719	3.837	4.131	
March	2.276	2.208	1.992	1.852	1.808	1.958	2.065	2.055	2.532	2.578	2.354	2.305	2.432	2.719	2.854	3.241	3.715	3.837	4.131	
April	2.304	2.400	1.974	1.892	1.780	2.107	2.065	2.062	2.584	2.578	2.354	2.267	2.433	2.719	2.884	3.241	3.709	3.837	4.131	
May	2.307	2.118	1.968	1.891	1.770	2.154	2.065	2.062	2.584	2.569	2.308	2.305	2.436	2.719	2.884	3.214	3.706	3.837	4.131	
June	2.318	2.093	1.961	1.888	1.786	2.154	2.065	2.067	2.584	2.513	2.283	2.305	2.442	2.464	2.719	2.834	3.211	3.705	3.837	4.131
July	2.312	2.056	1.940	1.892	1.841	2.107	2.065	2.139	2.584	2.359	2.283	2.305	2.444	2.464	2.719	2.914	3.293	3.705	3.837	4.131
Aug.	2.294	2.031	1.943	1.889	1.851	2.065	2.065	2.139	2.584	2.359	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837	4.131	
Sept.	2.282	2.011	1.943	1.863	1.879	2.065	2.065	2.146	2.584	2.367	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837	4.131	
Oct.	2.270	2.001	1.942	1.873	1.955	2.065	2.076	2.172	2.584	2.320	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837	4.131	
Nov.	2.265	1.993	1.937	1.866	1.947	2.065	2.076	2.172	2.584	2.354	2.288	2.305	2.464	2.719	3.193	3.720	3.705	3.837	4.131	
Dec.	2.278	1.975	1.902	1.861	1.958	2.065	2.076	2.263	2.584	2.354	2.305	2.305	2.464	2.719	3.193	3.720	3.756	4.131	4.131	
Average ..	2.288	2.111	1.957	1.873	1.851	2.051	2.068	2.118	2.536	2.450	2.311	2.273	2.396	2.449	2.686	3.014	3.434	3.712	3.862	4.131



THE IRON AGE finished steel composite price is a weighted average of the base prices of 10 major steel products which account for the majority of finished steel shipments. It is weighted by the percentage that each of these products in to total finished steel shipments during the base period. With the base constant, the only changes in the composite from 1929 through 1940 or from 1941 through 1949 occur when one or more steel products prices were changed.

In the composite shown here there are two base periods. For the years 1929 through 1940 the base is finished steel shipments for 1929-1939 inclusive. For 1941 through 1950 the base is finished steel shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. Two base periods are used because of basic changes in the shipment pattern in the 20 years covered. In each case the products remain the same. They are hot-rolled bars, structural shapes, plates, rails, pipe, wire and hot- and cold-rolled sheets and strip. To eliminate variations due to nonferrous metals price fluctuations, no coated products are included.

Details of latest revisions which appear in current series may be found in The Iron Age, May 12, 1949, p. 139. This reference also gives a comparison of current series with former series.

Steel prices: Sheets (cold-rolled, galvanized, hot-rolled, stainless), hvy. rails, plates, hot-rolled and cold-rolled strip.

STEEL INDUSTRY

COLD-ROLLED SHEETS

At Pittsburgh, Cents Per Pound		1933	1936	1937	1938	1939	1940*
Jan.	2.35	2.95	3.25	3.55	3.20	3.05	
Feb.	2.25	2.85	3.25	3.50	3.20	3.05	
Mar.	2.30	2.95	3.49	3.45	3.20	3.05	
Apr.	2.30	2.95	3.55	3.45	3.20	2.93	
May	2.34	2.95	3.55	3.43	3.11	3.05	
June	2.29	2.95	3.55	3.32	3.05		
July	2.40	3.05	3.55	3.20	3.05	3.05	
Aug.	2.47	3.05	3.55	3.20	3.05	3.05	
Sept.	2.75	3.05	3.55	3.20	3.05	3.05	
Oct.	2.75	3.05	3.55	3.08	3.05	3.05	
Nov.	2.75	3.05	3.55	3.20	3.05	3.05	
Dec.	2.75	3.25	3.55	3.20	3.05	3.05	
Average	2.48	3.02	3.49	3.31	3.10	3.04	
1946*	1947	1948	1949	1950	1951		
Jan.	3.05	3.20	3.55	4.00	4.10	4.35	
Feb.	3.16	3.20	3.55	4.00	4.10	4.35	
Mar.	3.275	3.20	3.55	4.00	4.10	4.35	
Apr.	3.275	3.20	3.55	4.00	4.10	4.35	
May	3.275	3.20	3.49	4.00	4.10	4.35	
June	3.275	3.20	3.49	4.00	4.10	4.35	
July	3.275	3.27	3.62	4.00	4.10	4.35	
Aug.	3.275	3.55	4.00	4.00	4.10	4.35	
Sept.	3.275	3.55	4.00	4.00	4.10	4.35	
Oct.	3.275	3.55	4.00	4.00	4.10	4.35	
Nov.	3.275	3.55	4.00	4.00	4.10	4.35	
Dec.	3.215	3.55	4.00	4.04	4.35	4.35	
Average	3.242	3.35	3.73	4.00	4.12	4.35	

* 1941-1945 = 3.05¢.

HOT-ROLLED SHEETS

At Pittsburgh, Cents Per Pound		1934	1937	1938	1939	1940*	1945*
Jan.	1.75	2.15	2.40	2.15	2.10	2.10	
Feb.	1.75	2.15	2.40	2.15	2.10	2.10	
Mar.	1.75	2.35	2.40	2.15	2.10	2.10	
Apr.	1.81	2.40	2.40	2.15	2.10	2.20	
May	2.00	2.40	2.38	2.06	1.99	2.20	
June	2.00	2.40	2.27	2.00	2.10	2.20	
July	1.88	2.40	2.15	2.00	2.10	2.20	
Aug.	1.85	2.40	2.15	2.00	2.10	2.20	
Sept.	1.85	2.40	2.15	2.00	2.10	2.20	
Oct.	1.85	2.40	2.03	2.00	2.10	2.20	
Nov.	1.85	2.40	2.15	2.02	2.10	2.20	
Dec.	1.85	2.40	2.15	2.10	2.10	2.20	
Average	1.85	2.35	2.25	2.06	2.09	2.18	
1946	1947	1948	1949	1950	1951		
Jan.	2.20	2.50	2.80	3.25	3.35	3.60	
Feb.	2.31	2.50	2.80	3.25	3.35	3.60	
Mar.	2.43	2.50	2.80	3.25	3.35	3.60	
Apr.	2.43	2.50	2.80	3.25	3.35	3.60	
May	2.43	2.50	2.77	3.25	3.35	3.60	
June	2.43	2.50	2.77	3.25	3.35	3.60	
July	2.43	2.50	2.89	3.25	3.35	3.60	
Aug.	2.43	2.80	3.28	3.25	3.35	3.60	
Sept.	2.43	2.80	3.28	3.25	3.35	3.60	
Oct.	2.43	2.80	3.28	3.25	3.35	3.60	
Nov.	2.43	2.80	3.28	3.25	3.35	3.60	
Dec.	2.49	2.80	3.28	3.29	3.60	3.60	
Average	2.40	2.63	3.00	3.26	3.37	3.60	

* 1941-1944 = 2.10¢.

GALVANIZED SHEETS

At Pittsburgh, Cents Per Pound		1933	1934	1936	1937	1938	1945†
Jan.	2.88	2.95	3.10	3.40	3.80	3.50	
Feb.	2.50	2.85	3.10	3.40	3.80	3.50	
Mar.	2.80	2.95	3.10	3.72	3.80	3.62	
Apr.	2.63	2.95	3.10	3.80	3.80	3.65	
May	2.70	3.25	3.10	3.80	3.80	3.66	
June	2.70	3.25	3.10	3.80	3.68	3.70	
July	2.85	3.13	3.20	3.80	3.50	3.70	
Aug.	2.85	3.10	3.20	3.80	3.50	3.70	
Sept.	2.85	3.10	3.20	3.80	3.50	3.70	
Oct.	2.85	3.10	3.20	3.80	3.45	3.70	
Nov.	2.85	3.10	3.20	3.80	3.50	3.70	
Dec.	2.85	3.10	3.40	3.80	3.50	3.70	
Average	2.74	3.05	3.17	3.73	3.64	3.65	
1946	1947	1948	1949	1950	1951		
Jan.	3.70	3.55	3.95	4.40	4.40	4.80	
Feb.	3.88	3.55	3.95	4.40	4.40	4.80	
Mar.	4.05	3.55	3.95	4.40	4.40	4.80	
Apr.	4.05	3.55	3.95	4.40	4.40	4.80	
May	4.05	3.55	3.91	4.40	4.40	4.80	
June	4.05	3.55	3.91	4.40	4.40	4.80	
July	4.05	3.63	4.03	4.40	4.40	4.80	
Aug.	4.05	3.95	4.40	4.40	4.40	4.80	
Sept.	4.05	3.95	4.40	4.40	4.40	4.80	
Oct.	4.05	3.95	4.40	4.40	4.40	4.80	
Nov.	4.05	3.95	4.40	4.40	4.40	4.80	
Dec.	3.85	3.95	4.40	4.40	4.80	4.80	
Average	3.99	3.72	4.13	4.40	4.43	4.80	

* Based on 10 gage since December 1938; 24 gage base up to that time.

† 1939-1944 = 3.50¢.

COLD-ROLLED STRIP

At Pittsburgh, Cents Per Pound		1933	1936	1937	1938	1939	1940*
Jan.	1.88	2.60	2.85	3.20	2.95	2.80	
Feb.	1.80	2.60	2.85	3.20	2.95	2.80	
Mar.	1.80	2.60	3.13	3.20	2.95	2.80	
Apr.	1.80	2.60	3.20	3.20	2.95	2.68	
May	1.80	2.60	3.20	3.18	2.86	2.80	
June	2.00	2.60	3.20	3.07	2.80	2.80	
July	2.19	2.60	3.20	2.95	2.80	2.80	
Aug.	2.25	2.60	3.20	2.95	2.80	2.80	
Sept.	2.29	2.60	3.20	2.95	2.80	2.80	
Oct.	2.40	2.60	3.20	2.83	2.80	2.80	
Nov.	2.40	2.60	3.20	2.95	2.80	2.80	
Dec.	2.40	2.80	3.20	2.95	2.80	2.80	
Average	2.09	2.62	3.14	3.05	2.86	2.70	
1946*	1947	1948	1949	1950	1951		
Jan.	2.80	3.20	3.55	4.00	4.20	4.75	
Feb.	2.93	3.20	3.55	4.00	4.21	4.75	
Mar.	3.05	3.20	3.55	4.00	4.21	4.75	
Apr.	3.05	3.20	3.55	4.00	4.21	4.75	
May	3.05	3.20	3.53	4.00	4.21	4.75	
June	3.05	3.20	3.53	4.00	4.21	4.75	
July	3.05	3.27	3.65	4.00	4.21	4.75	
Aug.	3.05	3.55	4.00	4.00	4.21	4.75	
Sept.	3.05	3.55	4.00	4.00	4.21	4.75	
Oct.	3.05	3.55	4.00	4.00	4.21	4.75	
Nov.	3.05	3.55	4.00	4.00	4.21	4.75	
Dec.	3.17	3.55	4.00	4.06	4.75	4.75	
Average	3.03	3.35	3.76	4.01	4.25	4.75	

* 1941-1945 = 2.80¢.

HOT-ROLLED STRIP

At Pittsburgh, Cents Per Pound		1933	1936	1937	1938	1939	1940†
Jan.	1.45	1.85	2.15	2.40	2.15	2.10	
Feb.	1.45	1.85	2.15	2.40	2.15	2.10	
Mar.	1.45	1.85	2.35	2.40	2.15	2.10	
Apr.	1.45	1.85	2.40	2.40	2.15	1.98	
May	1.49	1.85	2.40	2.38	2.06	2.10	
June	1.55	1.85	2.40	2.27	2.00	2.10	
July	1.60	1.95	2.40	2.15	2.00	2.10	
Aug.	1.64	1.95	2.40	2.15	2.00	2.10	
Sept.	1.68	1.95	2.40	2.15	2.00	2.10	
Oct.	1.75	1.95	2.40	2.03	2.00	2.10	
Nov.	1.75	1.95	2.40	2.15	2.02	2.10	
Dec.	1.75	2.11	2.40	2.15	2.10	2.10	
Average	1.58	1.91	2.35	2.25	2.08	2.09	
1946*	1947	1948	1949	1950	1951		
Jan.	2.10	2.50	2.80	3.25	3.25	3.50	
Feb.	2.23	2.50	2.80	3.25	3.25	3.50	
Mar.	2.35	2.50	2.80	3.25	3.25	3.50	
Apr.	2.35	2.50	2.80	3.25	3.25	3.50	
May	2.35	2.50	2.80	3.25	3.25	3.50	
June	2.35	2.50	2.80	3.25	3.25	3.50	
July	2.35	2.58	2.90	3.25	3.25	3.50	
Aug.	2.35	2.80	3.28	3.25	3.25	3.50	
Sept.	2.35	2.80	3.28	3.25	3.25	3.50	
Oct.	2.35	2.80	3.28	3.25	3.25	3.50	
Nov.	2.35	2.80	3.28	3.25	3.25	3.50	
Dec.	2.47	2.80	3.28	3.25	3.50	3.50	
Average	2.33	2.63	3.03	3.26	3.27	3.50	

* Over 6 in.; add 0.10¢ for 6 in. and under from February through November 1946.

† 1941-1945 = 2.10¢.

PLATES AT PITTSBURGH

Cents Per Pound, 1929 to 1950							
	1932	1933	1936	1937	1938*	1945*	
Jan.	1.50	1.60	1.80	2.05	2.25	2.10	
Feb.	1.50	1.60	1.80	2.05	2.25	2.10	
Mar.	1.52	1.60	1.80	2.21	2.25	2.20	
Apr.	1.60	1.55	1.80	2.25	2.25	2.20	
May	1.60	1.50	1.80	2.25	2.25	2.21	
June	1.60	1.53	1.80	2.25	2.22	2.25	
July	1.60	1.60	1.90	2.25	2.10	2.25	
Aug.	1.60	1.60	1.90	2.25	2.10	2.25	
Sept.	1.60	1.60	1.90	2.25	2.10	2.25	
Oct.	1.60	1.70	1.90	2.25	2.10	2.25	
Nov.	1.60	1.70	1.90	2.25	2.10	2.25	
Dec.	1.60	1.70	1.90	2.25	2.10	2.25	
Average	1.57	1.61	1.85	2.21	2.17	2.21	
	1946	1947	1948	1949	1950	1951	
Jan.	2.25	2.05	2.95	3.50	3.50	3.70	
Feb.	2.38	2.05	2.95	3.50	3.50	3.70	
Mar.	2.50	2.05	2.95	3.50	3.50	3.70	
Apr.	2.50	2.05	2.95	3.50	3.50	3.70	
May	2.50	2.85	2.93	3.40	3.50	3.70	
June	2.50	2.71	2.93	3.40	3.50	3.70	
July	2.50	2.95	3.07	3.40	3.50	3.70	
Aug.	2.50	2.95	3.50	3.40	3.50	3.70	
Sept.	2.50	2.95	3.50	3.40	3.50	3.70	
Oct.	2.50	2.95	3.50	3.40	3.50	3.70	
Nov.	2.50	2.95	3.50	3.40	3.50	3.70	
Dec.	2.50	2.95	3.50	3.44	3.70	3.70	
Average	2.47	2.80	3.19	3.43	3.52	3.70	

STEEL INDUSTRY

Steel prices: Cold-finished bars, merchant bars, mfg. bright wire, pipe, tool steel, tinplate, and structural steel shapes.

COLD-FINISHED STEEL BARS

At Pittsburgh, Cents Per Pound							
	1933	1936	1937	1938	1939*	1945*	
Jan.	1.70	2.10	2.55	2.90	2.70	2.65	
Feb.	1.70	2.10	2.55	2.90	2.70	2.65	
Mar.	1.70	2.10	2.83	2.90	2.70	2.65	
Apr.	1.70	2.10	2.90	2.90	2.70	2.65	
May	1.70	2.10	2.90	2.90	2.68	2.65	
June	1.70	2.10	2.90	2.70	2.65	2.65	
July	1.70	2.25	2.90	2.70	2.65	2.65	
Aug.	1.70	2.25	2.90	2.70	2.65	2.73	
Sept.	1.95	2.25	2.90	2.70	2.65	2.75	
Oct.	1.95	2.35	2.90	2.70	2.65	2.75	
Nov.	1.95	2.35	2.90	2.70	2.65	2.75	
Dec.	2.10	2.35	2.90	2.70	2.65	2.75	
Average	1.80	2.20	2.84	2.78	2.67	2.69	
1946	1947	1948	1949	1950	1951		
Jan.	2.75	3.20	3.55	3.98	4.145	4.55	
Feb.	2.93	3.20	3.55	3.98	4.145	4.55	
Mar.	3.10	3.20	3.55	3.98	4.145	4.55	
Apr.	3.10	3.20	3.55	3.98	4.145	4.55	
May	3.10	3.20	3.50	3.98	4.145	4.55	
June	3.10	3.20	3.50	3.98	4.145	4.55	
July	3.10	3.27	3.82	3.98	4.145	4.55	
Aug.	3.10	3.55	3.98	3.98	4.145	4.55	
Sept.	3.10	3.55	3.98	3.98	4.145	4.55	
Oct.	3.10	3.55	3.98	3.98	4.148	4.55	
Nov.	3.10	3.55	3.98	3.98	4.15	4.55	
Dec.	3.10	3.55	3.98	4.01	4.55	4.55	
Average	3.06	3.35	3.74	3.98	4.179	4.55	

* 1940-1944 = 2.65c.

MERCHANT BARS

At Pittsburgh, Cents Per Pound							
	1933	1936	1937	1938	1939*	1945*	
Jan.	\$1.60	\$1.85	\$2.20	\$2.45	\$2.25	\$2.15	
Feb.	1.60	1.85	2.20	2.45	2.25	2.15	
Mar.	1.60	1.85	2.40	2.45	2.25	2.15	
Apr.	1.60	1.85	2.45	2.45	2.25	2.15	
May	1.60	1.85	2.45	2.45	2.19	2.17	
June	1.60	1.85	2.45	2.41	2.15	2.25	
July	1.60	1.95	2.45	2.25	2.15	2.25	
Aug.	1.60	1.95	2.45	2.25	2.15	2.25	
Sept.	1.60	1.95	2.45	2.25	2.15	2.25	
Oct.	1.75	2.07	2.45	2.25	2.15	2.25	
Nov.	1.75	2.05	2.45	2.25	2.15	2.25	
Dec.	1.75	2.03	2.45	2.25	2.15	2.25	
Average	1.64	1.95	2.40	2.35	2.19	2.21	
1946	1947	1948	1949	1950	1951		
Jan.	\$2.25	\$2.60	\$2.90	\$3.45	\$3.45	\$3.70	
Feb.	2.38	2.60	2.90	3.45	3.45	3.70	
Mar.	2.50	2.60	2.90	3.45	3.45	3.70	
Apr.	2.50	2.60	2.90	3.35	3.45	3.70	
May	2.50	2.60	2.87	3.35	3.45	3.70	
June	2.50	2.60	2.87	3.35	3.45	3.70	
July	2.50	2.68	3.00	3.35	3.45	3.70	
Aug.	2.50	2.90	3.45	3.35	3.45	3.70	
Sept.	2.50	2.90	3.45	3.35	3.45	3.70	
Oct.	2.50	2.90	3.45	3.35	3.45	3.70	
Nov.	2.50	2.90	3.45	3.35	3.45	3.70	
Dec.	2.58	2.90	3.45	3.38	3.70	3.70	
Average	2.47	2.73	3.13	3.37	3.47	3.70	

* 1940-1944 = 2.15c.

MANUFACTURER'S BRIGHT WIRE

At Pittsburgh, Cents Per Pound							
	1931	1933	1934	1937	1938*	1945*	
Jan.	2.20	2.16	2.20	2.60	2.90	2.80	
Feb.	2.20	2.10	2.20	2.60	2.90	2.80	
Mar.	2.20	2.10	2.20	2.64	2.90	2.80	
Apr.	2.20	2.10	2.23	2.90	2.90	2.80	
May	2.20	2.10	2.30	2.90	2.90	2.80	
June	2.20	2.10	2.30	2.90	2.84	2.75	
July	2.20	2.10	2.30	2.90	2.80	2.75	
Aug.	2.20	2.10	2.30	2.90	2.80	2.75	
Sept.	2.20	2.10	2.30	2.90	2.80	2.75	
Oct.	2.20	2.10	2.30	2.90	2.80	2.75	
Nov.	2.20	2.10	2.30	2.90	2.80	2.75	
Dec.	2.20	2.20	2.30	2.90	2.80	2.75	
Average	2.20	2.11	2.27	2.84	2.74	2.80	
1946	1947	1948	1949	1950	1951		
Jan.	2.75	3.30	3.55	4.33	4.50	4.85	
Feb.	2.90	3.30	3.55	4.33	4.50	4.85	
Mar.	3.05	3.30	3.55	4.22	4.50	4.85	
Apr.	3.05	3.30	3.55	4.15	4.50	4.85	
May	3.05	3.30	3.60	4.15	4.50	4.85	
June	3.05	3.30	3.60	4.15	4.50	4.85	
July	3.05	3.35	3.77	4.15	4.50	4.85	
Aug.	3.05	3.55	4.33	4.15	4.50	4.85	
Sept.	3.05	3.55	4.33	4.15	4.50	4.85	
Oct.	3.05	3.55	4.33	4.15	4.50	4.85	
Nov.	3.05	3.55	4.33	4.15	4.50	4.85	
Dec.	3.10	3.55	4.33	4.29	4.85	4.85	
Average	3.02	3.41	3.90	4.20	4.53	4.85	

* 1939-1944 = 2.60c.

CAST IRON WATER PIPE

At New York, Net Ton, 8-in. and Larger							
	1932	1933	1936	1937	1938	1939*	
Jan.	\$30.20	\$35.20	\$45.20	\$48.00	\$53.00	\$49.00	
Feb.	29.70	35.30	45.20	48.00	53.00	49.00	
Mar.	28.40	35.30	45.20	51.00	53.00	49.00	
Apr.	28.20	35.30	45.20	53.00	53.00	49.00	
May	28.20	35.30	45.20	53.00	53.00	49.00	
June	28.20	38.30	45.20	53.00	52.20	49.00	
July	28.73	38.30	45.90	53.00	49.00	49.00	
Aug.	31.10	38.30	45.90	53.00	49.00	49.00	
Sept.	31.30	38.30	45.90	53.00	49.00	49.00	
Oct.	33.30	38.00	45.90	53.00	49.00	52.20	
Nov.	33.30	43.00	45.90	53.00	49.00	52.20	
Dec.	33.30	43.00	47.90	53.00	49.00	52.20	
Average	30.41	37.81	45.71	52.00	50.93	49.80	
1946*	1947	1948	1949	1950	1951		
Jan.	\$57.20	\$73.60	\$89.18	\$105.95	\$94.95	\$105.00	
Feb.	57.20	73.75	89.18	105.95	92.36	109.00	
Mar.	60.20	76.80	89.18	105.95	91.50	109.00	
Apr.	62.20	79.80	89.18	103.98	91.50	109.00	
May	62.20	79.80	92.34	84.95	91.50	109.00	
June	62.20	79.80	95.50	94.95	91.50	109.00	
July	69.60	80.50	95.50	94.95	91.50	109.00	
Aug.	69.60	83.30	103.66	94.95	91.50	109.00	
Sept.	69.60	83.30	105.95	94.95	91.50	109.00	
Oct.	69.60	83.96	105.95	94.95	95.00	109.00	
Nov.	69.60	84.18	105.95	94.95	95.00	109.00	
Dec.	73.60	84.18	105.95	94.95	98.00	109.00	
Average	65.23	80.25	97.31	98.45	92.98	108.67	

* 1940-1945 = \$52.20.

BUTWELD STEEL PIPE

At Pittsburgh, Per Net Ton, Carload Lots							
	1931	1933	1934	1936	1937	1938*	
Jan.	\$66.50	\$65.00	\$61.75	\$68.40	\$61.00	\$71.00	
Feb.	66.50	65.00	61.75	64.98	61.00	71.00	
Mar.	66.50	65.00	61.75	61.90	69.00	71.00	
Apr.	66.50	65.00	61.75	61.00	71.00	71.00	
May	63.59	58.00	68.40	61.00	71.00	71.00	
June	64.84	58.00	68.40	61.00	71.00	71.00	
July	64.84	61.75	68.40	61.00	71.00	63.00	
Aug.	64.84	61.75	68.40	61.00	71.00	63.00	
Sept.	64.84	61.75	68.40	61.00	71.00	63.00	
Oct.	64.84	61.75	68.40	61.00	71.00	63.00	
Nov.	64.84	61.75	68.40	61.00	71.00	63.00	
Dec.	64.84	61.75	68.40	61.00	71.00	63.00	
Average	65.29	61.63	66.32	62.01	69.17	67.00	
1946*	1947	1948	1949	1950	1951		
Jan.	\$63.00	\$79.00	\$89.00	\$103.00	\$108.00	\$117.00	
Feb.	66.00	79.00	91.50	103.00	108.00	117.00	
Mar.	69.00	79.00	95.00	103.00	108.00	117.00	
Apr.	69.00	79.00	95.00	103.00	108.00	117.00	
May	69.00	79.00	94.00	103.00	108.00	117.00	
June	69.00	79.00	93.00	103.00	108.00	117.00	
July	69.00	79.00	95.00	103.00	108.00	117.00	
Aug.	69.00	88.00	103.00	103.00	108.00	117.00	
Sept.	69.00	88.00	103.00	103.00	108.00	117.00	
Oct.	69.00	88.00	103.00	103.00	108.00	117.00	
Nov.	69.00	88.00	103.00	103.00	108.00	117.00	
Dec.	71.00	88.00	103.00	105.00	117.00	117.00	
Average	68.42	82.75	97.21	103.17	108.75	117.00	

* 1939-1945 = \$63.00.

Computed from list discounts, for carload lots; price for base size pipe, 1 to 3 in.; 1 in. only since August, 1947; 3/4 to 3 in. prior to Apr. 13, 1951

HIGH SPEED TOOL STEEL

18-4-1, Cents Per Pound							
	1946*	1947	1948	1949	1950	1951	
Jan.....	67.00	72.494	82.00	90.5	100.0	118.0	
Feb.....	69.792	72.494	82.00	90.5	100.0	123.5	
Mar.....	72.494	72.494	82.00	90.5	100.0	123.5	
Apr.....	72.494	74.00	82.00	90.5	100.0	123.5	
May.....	72.494	74.00	82.00	90.5	100.0	123.5	
June.....	72.494	74.00	82.00	90.5	100.0	123.5	
July.....	72.494	74.00	82.00	90.5	100.0	123.5	
Aug.....	72.494	82.00	90.5	90.5	100.0	150.5	
Sept.....	72.494	82.00	90.5	90.5	100.0	150.5	
Oct.....	72.494	82.00	90.5	90.5	100.0	150.5	
Nov.....	72.494	82.00	90.5	90.5	100.0	150.5	
Dec.....	72.494	82.00	90.5	90.5	110.0	150.5	
Average	71.81	75.58	85.5	90.5	100.9	134.19	
* 1939-1945 = 67.0¢.							

Steel shipments to warehouses: Bars, wire, sheets, strip, plates, shapes, tubing . . . Total shipments with per cent of total.

STEEL INDUSTRY

STEEL SHIPMENTS TO WAREHOUSES

Net tons

HOT ROLLED STRIP

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	125,946	1,643,335	7.7
1950.....	131,338	2,330,763	5.7
1949.....	125,079	1,628,917	7.7
1948.....	142,873	1,568,540	9.1
1947.....	129,352	1,740,085	7.4
1946.....	107,905	1,383,812	7.9

COLD-ROLLED STRIP

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	83,938	1,572,971	5.3
1950.....	107,579	1,894,588	5.7
1949.....	83,534	1,380,477	6.1
1948.....	91,343	1,519,733	6.0
1947.....	47,349	1,499,121	3.2
1946.....	45,088	1,282,146	3.5

GALVANIZED SHEETS*

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	555,311	1,539,794	36.2
1950.....	876,798	2,262,041	38.8
1949.....	623,897	1,755,067	35.5
1948.....	481,266	1,643,337	29.3
1947.....	440,021	1,609,881	27.3
1946.....	440,457	1,462,053	30.1
1945.....	647,748	1,695,796	38.2
1944.....	537,020	1,370,175	39.2
1943.....	318,674	869,109	36.7
1942.....	283,196	998,584	28.4
1941.....	676,835	1,708,050	39.6
1940.....	733,848	1,586,723	46.2
1939.....	657,519	1,635,336	52.4

HOT-ROLLED SHEETS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	810,875	6,235,514	13.0
1950.....	958,910	7,804,948	12.3
1949.....	673,680	6,211,458	10.9
1948.....	824,023	6,704,654	12.3
1947.....	871,393	7,300,881	11.9
1946.....	810,196	5,821,463	14.7

COLD-ROLLED SHEETS

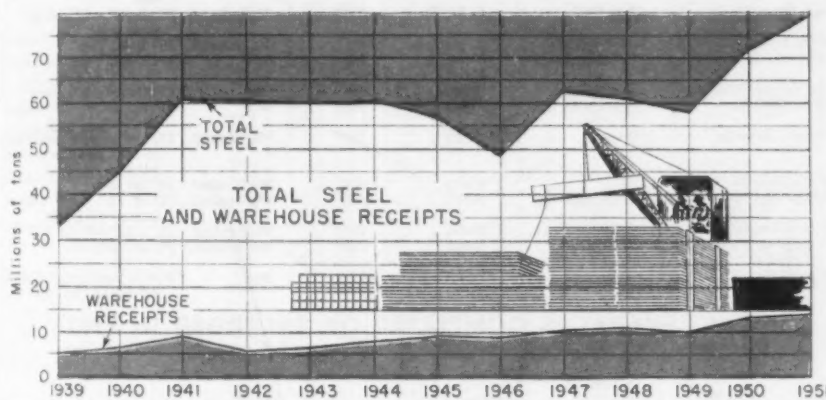
	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	707,230	7,300,271	9.7
1950.....	902,156	9,338,312	9.7
1949.....	590,779	6,942,201	8.5
1948.....	516,273	6,381,378	8.1
1947.....	459,335	5,504,576	8.3
1946.....	453,491	4,075,554	11.1

* 1946-47 includes coated sheets except tinplate and ternplate.

TOTAL STEEL PRODUCTS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951*.....	10,511,518	58,927,091	17.8
1950.....	13,171,680	72,232,292	18.2
1949.....	10,219,963	58,104,010	17.59
1948.....	10,949,920	60,966,999	17.96
1947.....	10,484,144	63,057,150	16.63
1946.....	9,304,817	48,775,532	19.06
1945.....	9,571,436	57,242,240	16.72
1944.....	8,008,078	60,352,690	13.27
1943.....	6,023,760	58,905,646	11.39
1942.....	5,962,068	60,464,774	9.86
1941.....	9,155,159	61,229,873	14.95
1940.....	6,686,534	45,850,825	14.58
1939.....	5,179,680	33,122,628	15.63

* 9 Months.



PLATES

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	799,058	5,852,353	13.1
1950.....	885,899	5,677,094	15.6
1949.....	681,348	6,759,065	11.5
1948.....	822,149	6,782,678	12.2
1947.....	822,459	6,345,216	14.5
1946.....	709,728	4,152,181	17.1
1945.....	745,683	6,841,304	10.9
1944.....	778,498	11,955,559	6.5
1943.....	565,662	12,937,230	4.4
1942.....	456,582	11,612,987	3.9
1941.....	438,540	5,842,809	7.5
1940.....	313,663	4,065,383	7.7
1939.....	215,241	2,584,057	8.4

HOT-ROLLED BARS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	905,248	6,805,975	13.7
1950.....	1,101,249	6,017,465	18.3
1949.....	988,695	6,416,102	15.4
1948.....	1,100,931	6,196,444	17.8
1947.....	1,219,939	7,983,848	15.3
1946.....	1,026,873	6,397,137	16.1
1945.....	1,114,462	5,727,367	19.5
1944.....	915,827	6,020,464	15.2
1943.....	923,598	5,982,873	15.4
1942.....	684,881	5,519,035	12.4
1941.....	750,821	5,788,821	13.0
1940.....	604,285	4,864,731	12.4

PIPE AND TUBING

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	3,202,522	6,721,055	47.6
1950.....	4,078,140	8,923,840	45.7
1949.....	3,266,231	6,935,220	47.1
1948.....	3,302,127	6,456,102	51.1
1947.....	2,825,666	6,117,894	46.2
1946.....	2,601,500	4,655,505	55.9
1945.....	2,243,123	5,752,752	39.0
1944.....	2,054,560	5,259,503	39.1
1943.....	1,647,543	5,116,671	32.2
1942.....	1,633,738	4,716,061	34.6
1941.....	2,692,424	5,888,939	45.7
1940.....	2,142,147	3,920,200	54.6
1939.....	983,957	3,318,746	29.6

WIRE AND WIRE PRODUCTS

	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	1,270,236	3,638,058	34.9
1950.....	1,686,610	4,547,301	37.1
1949.....	1,297,742	3,466,271	37.2
1948.....	1,559,676	4,300,794	36.3
1947.....	1,366,090	4,174,602	32.7
1946.....	1,151,316	3,260,589	35.3
1945.....	1,248,596	3,228,716	38.7
1944.....	1,262,525	3,200,852	39.4
1943.....	1,306,300	3,276,874	39.9
1942.....	935,104	3,314,361	28.2
1941.....	1,536,347	3,794,538	40.5
1940.....	1,054,843	2,569,337	41.1
1939.....	1,045,367	2,614,962	39.9

STRUCTURAL SHAPES*

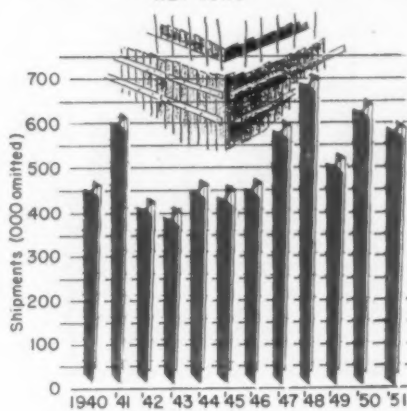
	Shipments to Warehouses	Total Mill Shipments	Percent of Total
1951 (9 Mo.)..	845,498	3,650,549	17.7
1950.....	769,600	4,197,653	18.3
1949.....	679,719	3,669,503	18.5
1948.....	772,815	4,190,934	18.4
1947.....	857,082	4,436,129	19.3
1946.....	786,651	3,474,284	22.6
1945.....	917,142	3,763,952	24.4
1944.....	571,884	3,912,951	14.6
1943.....	412,727	3,916,126	10.5
1942.....	410,708	5,290,162	7.8
1941.....	547,511	4,941,818	11.1
1940.....	331,523	3,333,450	9.9
1939.....	253,235	2,583,101	11.0

* 1940-45 includes piling.

Source for all tables on this page is American Iron & Steel Institute, compilation by THE IRON AGE

STEEL INDUSTRY

REROLLED RAIL STEEL SHIPMENTS
NET TONS



REROLLED RAIL STEEL
(Shipments—Net Tons)

Year	Concrete Bars	Carbon Bars	Other Products	Total
1940	155,198	213,551	85,331	454,070
1941	224,761	290,732	92,090	607,543
1942	223,015	136,161	85,243	424,419
1943	100,378	199,567	102,927	402,870
1944	96,265	246,274	118,242	460,781
1945	115,159	236,009	99,527	450,695
1946	181,141	225,632	61,877	468,650
1947	236,322	263,066	90,085	589,473
1948	248,768	306,861	145,649	701,279
1949	223,325	234,877	71,013	529,215
1950	217,153	322,938	104,758	644,849
1951*	218,429	300,087	81,085	599,574

* Includes estimate on last 2 months.
Source: Rail Steel Bar Assn.

CONTROLS GUIDE

"Defense Controls Guide," a special 16-page section, starts on p. 327. Besides digesting "M" orders and CMP regulations it carries a handy foldout chart that names room locations and telephone numbers of 290 controls and allocations officials in Washington.

SPECIFICATIONS

If you have defense orders you may be interested in the various federal and military specifications digested in this issue, beginning on p. 260.

DATA SOURCES

Sources are given beneath tables for data received or compiled from outside sources. If not so credited, the source is THE IRON AGE.

Steel Expansion: Blast furnaces, rolling mills and blast furnaces installed, 1951 . . .
Rerolled rail steel shipments for 10 years.

STEEL ROLLING MILL INSTALLATIONS

Built or Modernized During 1951—As Reported to The Iron Age

Company	Location of Works	Builder	Date Delivered 1951	New or Modernized	Type
Allegheny-Ludlum Steel	W. Leechburg, Pa.	United	July	New	2-30" 4H. rev. cold mill
Allegheny-Ludlum Steel	W. Leechburg, Pa.	United	July	New	1-56" 4H. rev. cold mill
U. S. Steel Co.	Gary, Ind.	United	December	Modernized	1-42" 4H. rev. cold mill
Jones & Laughlin Steel	Aliquippa, Pa.	United	December	New	16"-12"-10" red mill
Armco Steel Corp.	Zanesville, Ohio	United	October	New	2-48" 4H. temper mills
Pittsburgh Steel Co.	Monessen, Pa.	United	December	New	1-46" blooming mill
Geneva Steel Co.	Provo, Utah	United	October	New	1-85" 2H. temper mill
Detroit Steel Corp.	Portsmouth, Ohio	United	December	New	1-56" 3-Std. tand. cold mill
Weirton Steel Co.	Weirton, W. Va.	United	June	New	1-56" 2H. temper mill
Crucible Steel	Midland, Pa.	United	February	New	1-16" 4H. cold mill
Granite City Steel Co.	Granite City, Ill.	United	December	Modernized	1-56" 2H. temper mill
Empire Steel	Mansfield, O.	E. W. Bliss	1951	New and partially modernized	1-48" 4H. temper mill
Jones & Laughlin Steel	Aliquippa, Pa.	E. W. Bliss	1951	New	32" cont. hot strip mill
Ford Motor Co.	River Rouge, Mich.	E. W. Bliss	1951	Modernized	19" & 48" x 48" 2-stand tandem temper pass mill
Ford Motor Co.	River Rouge, Mich.	E. W. Bliss	1951	Modernized	19" & 49" x 66" 3-stand tandem
Ford Motor Co.	River Rouge, Mich.	E. W. Bliss	1951	Modernized	27 1/2" & 56" 2-H temper mill
Ohio Knife	Cincinnati, O.	E. W. Bliss	1951	New	4-High 20 1/2" & 56" x 84" temper mill
U. S. Steel Co.	Gary, Ind.	E. W. Bliss	1951	Modernized	18" x 26" 2-H hot mill
U. S. Steel Co.	Gary, Ind.	E. W. Bliss	1951	Modernized	20" & 48" x 84" temper pass mill
U. S. Steel Co.	Gary, Ind.	E. W. Bliss	1951	Modernized	20" & 48" x 84" temper pass mill
U. S. Steel Co.	Irvin Works Houston, Texas	E. W. Bliss	1951	Modernized	20" & 48" x 81" temper mill
Sheffield Steel	Houston, Texas	Morgan Constr.	1951	New	7-stand 12" merchant mill. Bought in 1948.
Bethlehem Steel Corp.	Johnstown	Mesta	1951	New	48" slabbing-blooming
U. S. Steel Co.	Morrisville	Mesta	1951	New	21" & 53" x 48" 5-stand tandem cold mill
Geneva Steel Co.	Provo	Mesta	1951	Modernized	132" plate mill conversion to 80" semi-continuous hot strip
U. S. Steel Co.	Irvin	Mesta	1951	Modernized	80" hot strip
Inland Steel Co.	E. Chicago	Mesta	1951	Modernized	18" & 49" x 42" 5-stand tandem cold mill
Inland Steel Co.	E. Chicago	Mesta	1951	Modernized	38" x 44" 2-H hot mill
Youngstown Sheet & Tube Co.	Youngstown	Mesta	1951	Modernized	79" hot strip mill
Detroit Steel Co.	Portsmouth	Pgh. Eng. & Mach. Co.	1951	New	2-H 72" universal mill and 56" 4-stand hot mill

BLAST FURNACES COMPLETED OR ENLARGED IN 1951

Furnaces Listed by Companies With Location and Capacity in Net Tons

Company	Number of Furnaces	Annual Capacity Increase (N.T.)	Location	Operation Started	Remarks
Wisconsin Steel Division—International Harvester	1	34,675	Chicago, Ill.	10/1/51	Furnace enlarged.
Central Iron & Steel Co.	1	200,000	Chester, Pa.	6/1/51	Rehabilitated.
Colorado Fuel & Iron Corp.	1	45,000	Pueblo, Colo.	12/31/51	Enlarged.
Detroit Steel Corp.	1	500,000	Portsmouth, Ohio		1400 ton, under construction.
U. S. Steel Co.	1	112,100	Youngstown	1951	No. 2 furnace enlarged.

NEW STEELMAKING CAPACITY INSTALLED IN 1951

Reported by Companies and Location with Description of Facilities and Capacity

Company	Number of Furnaces	Rated Capacity per Heat (N.T.)	Annual Capacity Increase (N.T.)	Location	Furnace Builder	Operation Started	Remarks
OPENHEARTH FURNACES							
J. A. Roebling's Sons	1	80	20,000	Roebling, N. J.	Self	1/3/51	Replaces 40-T unit
Industrial Forge & Steel	2	35	52,000	Canton, Ohio		12/1/50	
Keystone Steel & Wire	1	175	100,000	Peoria, Ill.	Self	11/26/51	Enlargements
Republic Steel			216,000			1951	
Pacific States Steel	1	150	75,000	Niles, Cal.	Pacific States Steel Corp.	1951	
The Midvale Co.	1	100	41,580	Nicotown, Pa.	Midvale Co.	1/1/52	
Ford Motor Co.	1	200	11,000	Rouge, Mich.	Pa. Eng. Works	1951	Converted from tilter to stationary. Heat cap. was 180 T.
Kaiser Steel Corp.	1	200	180,000	Fontana	Loftus	1951	
Jones & Laughlin Steel		250	300,000	Pittsburgh	Swindell & Loftus	1951	First furn. started Oct.
Total openhearth furnaces 995,580							
ELECTRIC FURNACES							
Allegheny Ludlum	2	20	72,000	Watervliet, N. Y.	American Bridge	12/1/51 est.	
McLouth Steel	4	60	140,000	Trenton, Mich.	American Bridge	Sept.-Oct. 1951	Converted to top charge
Latrobe Electric	1	6		Latrobe, Pa.	American Bridge	4/1/51	
Babcock & Wilcox	1	50	90,000	Beaver Falls, Pa.	Swindell	8/1/51	
Armco Steel	1	100	150,000	Houston, Tex.	Dressler Pgh. Electro Mill	8/1/51	Sheffield Steel Corp.
Rotary Electric	3		54,000	Detroit		1/1/51	Converted to top charge
Total electric furnaces 506,000							
Grand total 1,501,580							

Financial analysis of the steel industry
... Earnings, capacity, production, sales,
shipments, invested capital by companies.

STEEL INDUSTRY

FINANCIAL ANALYSIS OF THE STEEL INDUSTRY

For Years 1948, 1949, 1950. Data Cover 26 Companies Representing 92 Pct of Ingot Capacity

COMPANY	Year	Ingot Capacity Net Tons	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Earnings Per Common Share	Invested Capital
U. S. Steel Corp.	1950	33 900.000	31 457.000	98.2	22 635.000	12 956 406 146	\$234 000 000	\$215 464 142	7.3	\$7.29	\$2 076 950 448
	1949	32 000.000	25 807.000	82.5	18 212.000	2 301 685 689	126 000 000	165 908 829	7.2	5.39	1 983 557 284
	1948	31 300.000	29 300.000	93.8	20 700.000	2 481 508 535	109 000 000	129 627 845	5.2	12.00	1 904 614 189
Bethlehem Steel Corp.	1950	15 000.000	15 116.456	100.8	10 933.296	1 445 404 331	122 000 000	122 976 071	8.5	12.15	877 709 177
	1949	14 200.000	12 596.949	88.7	9 217.188	1 271 040 076	66 500 000	99 283 539	7.8	9.68	803 760 929
	1948	13 800.000	13 411.492	97.2	9 993.481	1 315 188 536	57 225 000	90 347 560	6.9	9.36	766 983 287
Republic Steel Corp.	1950	8 967.000	8 551.013	95.3	6 388.157	881 753 328	79 200 000	63 794 711	7.2	10.53	439 440 217
	1949	8 700.000	6 804.020	79.1	5 123.608	651 952 835	35 000 000	46 142 323	7.1	7.54	413 893 344
	1948	8 600.000	8 324.172	96.8	6 405.581	772 000 047	34 000 000	46 438 382	6.0	7.61	400 744 821
Jones & Laughlin Steel Corp.	1950	4 846.500	4 944.000	102.0	3 844.000	487 451 000	33 850 000	39 744 000	8.2	14.72	377 238 000
	1949	4 816.500	4 170.432	87.0	3 042.296	386 046 149	13 150 000	20 961 245	5.4	7.50	324 527 137
	1948	4 815.000	4 633.558	97.0	3 695.414	446 067 301	16 950 000	31 222 451	7.0	12.01	311 167 816
National Steel Corp.	1950	4 800.000				537 024 673	61 100 000	57 814 974	10.77	7.85	331 068 167
	1949	4 200.000				424 892 845	37 400 000	39 311 269	9.3	16.02	294 829 694
	1948	4 050.000				436 522 051	33 300 000	40 121 506	9.2	16.35	268 804 722
Armco Steel Corp.	1950	4 330.000	3 958.727	91.4	2 976.293	439 296 931	48 173 228	47 000 505	10.70	11.76	288 944 394
	1949	3 793.000	3 131.020	82.5	2 389 103	341 350 147	19 315 315	30 818 202	9.1	7.68	261 897 665
	1948	3 653.000	3 332.261	91.5	2 572.608	382 563 811	20 072 015	32 030 712	8.4	9.00	255 678 368
Youngstown Sheet & Tube Co.	1950	4 250.000	4 124.781	101.0	3 031.676	409 898 010	33 820 000	40 616 403	10.1	12.12	301 756 048
	1949	4 082.000	3 478.259	85.2	2 550 380	338 344 004	19 894 000	31 777 010	9.5	18.97	272 889 691
	1948	4 002.000	3 966.099	99.1	2 982 057	381 742 264	25 400 000	35 711 732	9.4	21.32	250 982 729
Inland Steel Co.	1950	3 750.000	3 675.707	102.8	3 318 149	461 376 600	41 224 700	38 015 678	8.2	7.76	275 631 279
	1949	3 400.000	3 019.555	88.8	2 715 396	347 640 710	15 935 000	25 013 707	7.2	5.11	256 763 200
	1948	3 400.000	3 533.374	103.9	3 252 681	394 716 908	23 221 000	38 606 896	9.8	7.88	231 311 697
Wheeling Steel Corp.	1950	1 800.000	1 638.475	94.7	1 866 723 442	17 342 000	18 314 517	9.81	11.59	169 623 166	
	1949	1 536.000	1 227.600	79.9	1 443 419 446	5 819 000	7 896 265	5.5	10.68	158 195 963	
	1948	1 409.000	1 303.424	92.5	1 541 953 406	10 000 000	15 050 045	9.7	23.24	155 546 764	
Colorado Fuel & Iron Corp.	1950	1 472.000	1 198 531	81.42	1 115 504	112 642 939	2 704 300	4 406 226	3.91	3.30	82 383 166
	1949	1 472.000	1 446 893	98.3	1 348 138	138 344 200	6 069 200	10 182 919	7.4	8.46	77 408 438
	1948	1 472.000	1 395 717	94.8	1 225 027	118 858 896	3 699 100	6 181 777	5.2	5.04	66 942 398
Sharon Steel Corp.	1950	1 441 400	1 448 978	100.5	1 047 795	136 120 769	9 945 000	9 284 643	6.8	10.03	55 646 963
	1949	1 672.000	1 001 625	59.9	738 584	90 068 564	1 680 000	3 325 964	3.7	5.39	49 917 062
	1948	1 672.000	1 296 383	77.7	964 987	119 849 560	5 811 000	9 234 983	7.8	14.96	48 525 580
Crucible Steel Co. of America	1950	1 153 485				147 705 329	8 200 527	6 311 254	4.27	9.73	95 639 334
	1949	1 112 984				99 393 228	351 827	1 352 764	1.4	None	92 304 721
	1948	1 277 133				131 360 030	2 748 021	3 596 177	2.7	4.15	93 418 760
Pittsburgh Steel Co.	1950	1 072.000	1 074 340	100.22	1 001 297	119 185 237	6 510 000	6 350 410	5.33	6.13	59 054 104
	1949	1 072.000	717 253	66.9	595 486	80 559 351	624 000	844 810	1.1	.04	54 188 177
	1948	1 072 557	976 218	91.0	774 108	102 858 785	4 350 000	5 484 090	5.3	9.07	54 841 029
Barium Steel Corp.	1950	893.000	471 095	54.0	414 416	53 523 876	1 752 942	1 474 226	2.8	.66	15 034 143
	1949	406.000	186 485	45.9	131 414	33 885 546	809 463	711 452	2.1	.33	13 295 963
	1948	441.000	390.000	88.4	310.000	61 257 670	2 048 176	2 615 270	5.3	1.32	12 552 420
Allegheny Ludlum Steel Corp.	1950	832 360	701 569	85.5	617 710	177 961 693	10 250 000	9 814 891	5.52	7.07	60 701 579
	1949	832 360	362 813	57.8	297 635	105 863 359	1 200 000	1 967 324	1.9	1.15	52 659 400
	1948	496 360	462 306	93.1	428 000	126 780 255	4 601 358	6 833 384	5.4	5.05	54 069 677
Lukens Steel Co.	1950	675.000	621 761	92.1	439 067	52 935 861	1 505 834	1 922 037	3.63	6.04	23 770 861
	1949	675.000	545 253	80.8	306 450	55 825 306	1 640 330	1 930 045	3.5	6.07	23 107 877
	1948	624.000	647 876	103.9	61 460 919	61 460 919	1 675 000	2 411 604	3.9	7.35	17 866 645
Detroit Steel Corp.	1950	660.000	653 983	99.1	805 699	92 949 234	8 615 770	8 943 140	9.6	7.54	25 582 996
	1949	660.000	511 647	77.5	326 386	49 744 601	3 012 000	4 885 424	9.8	3.87	21 750 173
	1948	660.000	647 816	98.2	523 096	58 904 664	2 600 000	4 511 550	7.7	3.54	19 300 975
Granite City Steel Co.	1950	620.000	681 510	109.9	555 858	60 234 883	5 420 000	5 727 406	9.6	11.52	32 137 772
	1949	620.000	531 824	85.8	464 131	46 986 523	1 890 000	2 958 109	6.4	7.44	21 050 032
	1948	620.000	493 720	79.6	408 449	41 370 888	2 370 000	3 267 707	7.9	8.54	20 396 133
Copperweld Steel Co.	1950	554.400				55 596 047	1 800 000	2 572 539	4.6	4.88	18 742 500
	1949	554.400				42 706 329	900 000	1 737 506	4.1	3.24	15 620 337
	1948	554.400				75 570 115	3 414 500	4 989 019	6.6	9.54	13 814 294
Alan Wood Steel Co.	1950	550.000	485 607	88.3	337 415	44 954 826	1 745 000	2 546 902	5.7	3.92	26 668 828
	1949	550.000	381 710	69.4	270 803	35 895 460	1 480 000	2 255 840	6.3	3.76	27 548 014
	1948	550.000	530 691	96.5	425 114	47 480 574	2 842 000	4 116 444	8.7	7.78	25 738 866
Rotary Electric Steel Co.	1950	425.000	382 784	90.1	307 433	31 103 586	1 910 000	2 150 170	6.9	11.10	10 856 106
	1949	420.000	247 350	58.9	213 976	16 865 512	955 000	1 287 063	7.6	6.7	10 093 290
	1948	340.000	247 658	94.5	227 280	18 940 250	1 500 000	2 496 859	13.2	12.94	6 081 237
The Midvale Co.	1950	417 624				11 394 397	None	51 143	0.45	0.09	16 326 189
	1949	449 950	67 647	15.0		13 739 443	None	1 094 387	8.0	1.82	15 784 139
	1948	517 322	64 962	12.6		10 509 015	None	1 665 718	15.9	2.78	17 734 454
Continental Steel Corp.	1950	394.000	372 138	94.5	282 802	36 428 123	3 220 000	2 660 153	7.30	5.31	15 963 854
	1949	364.000	239 736	65.9		22 505 582	785 000	636 716	2.8	1.27	14 978 249
	1948	364.000	317 927	87.3		29 743 309	1 200 000	1 825 150	5.5	3.24	15 093 600
Laclede Steel Co.	1950	397 845	360 668	90.7	332 426	39 615 464	3 383 000	3 222 475	8.1	15.62	14 706 971
	1949	326 025	283 488	87.0	263 862	31 209 110	1 815 000	2 718 352	8.7	13.18	12 733 916
	1948	326 025	276 170	85.3	284 538	34 072 411	1 165 000	1 767 863	5.2	8.57	11 178 504
Keystone Steel & Wire Co.	1950	325.000	342 489	105.4	295 686	43 206 187	5 609 721	6 477 387	14.99	3.45	19 216 035
	1949	302.400	308 131	101.9	278 683	36 735 489	2 600 053	5 084 181	13.8	2.71	16 582 398
	1948	302.400	298 862	98.8	265 264	34 504 429	2 060 598	4 167 550	12.1	2.22	15 373 217</

Italics indicate loss.

January 3, 1952

STEEL INDUSTRY

U. S. Coke Capacity: Oven types listed
by producing companies, plant locations.

ANNUAL CAPACITIES OF THE STEEL INDUSTRIES OF THE UNITED STATES AND CANADA

Following are capacity data of U. S. and Canadian steel industries. Capacity is shown by products, plants, companies, states. Source for all data is the 1951 edition of the Directory of Iron and Steel

Works of the United States and Canada. The American Iron & Steel Institute has granted THE IRON AGE special permission to reprint these handy reference tables. Capacity is reported in net tons.

U. S. COKE CAPACITY BY COMPANIES

Number and Capacity of Beehive and By-Product Coke Ovens

Companies:	BEEHIVE		OTHER		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Alan Wood Steel Company.....			151	600,000	600,000
Armco Steel Corporation.....			110	558,000	558,000
Sheffield Steel Corporation.....			47	252,000	252,000
TOTAL.....			157	810,000	810,000
Bethlehem Steel Company.....			1,916	9,546,000	9,546,000
Colorado Fuel and Iron Corporation.....			266	1,220,000	1,220,000
Crucible Steel Company of America.....			184	720,000	720,000
Detroit Steel Corporation.....			108	480,000	480,000
Donner-Hanna Coke Corporation.....			216	1,200,000	1,200,000
Eastern Gas and Fuel Associates.....			204	1,112,000	1,112,000
Ford Motor Company.....			183	1,314,000	1,314,000
Granite City Steel Co.....			49	310,000	310,000
Inland Steel Company.....			418	2,143,400	2,143,400
Interlake Iron Corporation.....			347	1,356,800	1,356,800
International Harvester Company.....			133	600,000	600,000
Jones & Laughlin Steel Corporation.....	240	252,000	753	3,600,000	3,852,000
Kaiser Steel Corporation.....	297	100,000	135	552,000	652,000
Kaiser & Fraser Parts Corporation.....	500	300,000			300,000
Lone Star Steel Company.....			78	438,000	438,000
National Steel Corporation:					
Great Lakes Steel Corporation.....			146	1,120,000	1,120,000
Weirton Coal Company.....	136	120,000			120,000
Weirton Steel Company.....			249	1,510,000	1,510,000
TOTAL.....	136	120,000	395	2,630,000	2,750,000
Pittsburgh Coke & Chemical Company.....			105	685,000	685,000
Pittsburgh Steel Company.....	574	426,000	74	500,000	926,000
Republic Steel Corporation.....	296	215,000	962	5,040,000	5,255,000
Sharon Steel Corporation.....			134	625,000	625,000
Carpenters Coal & Coke Co.....	585	375,000			375,000
TOTAL.....	585	375,000	134	625,000	1,000,000
Sloss-Sheffield Steel & Iron Company.....			120	678,000	678,000
Tennessee Products & Chemical Corp.....			44	240,000	240,000
United States Steel Corporation:					
American Steel & Wire Company.....			294	1,318,270	1,318,270
Geneva Steel Company.....			308	1,212,300	1,212,300
National Tube Company.....			385	1,766,750	1,766,750
Tennessee Coal, Iron & Railroad Co.....			572	2,945,550	2,945,550
United States Steel Company.....	2,912	2,073,750	2,995	14,369,820	16,443,570
TOTAL.....	2,912	2,073,750	4,554	21,612,690	23,686,440
Wheeling Steel Corporation.....			251	1,296,000	1,296,000
Woodward Iron Company.....			226	830,000	830,000
Youngstown Sheet and Tube Company.....			580	2,784,000	2,784,000
GRAND TOTAL.....	5,540	3,861,750	12,743	62,922,890	66,784,640

COKE CAPACITY BY STATES

Number and Capacity of Coke Ovens by Plant Location

Plant Location and Operating Company:	No. of ovens	Annual capacity (N. T.)
Alabama		
Birmingham		
Republic Steel Corporation.....	57	250,000
Fairfield		
Tennessee Coal, Iron & Railroad Co.....	572	2,945,550
Gadsden		
Republic Steel Corporation.....	102	565,000
North Birmingham		
Sloss-Sheffield Steel & Iron Company.....	120	678,000
Woodward		
Woodward Iron Company.....	226	830,000
TOTAL.....	1,077	5,268,550
California		
Fontana		
Kaiser Steel Corporation.....	135	552,000
Colorado		
Pueblo		
Colorado Fuel and Iron Corporation.....	266	1,220,000

	BEEHIVE		OTHER		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Illinois					
Chicago					
Interlake Iron Corporation.....			120	398,600	398,600
Granite City					
Granite City Steel Company.....			49	310,000	310,000
Joliet					
United States Steel Company.....			280	1,071,520	1,071,520
South Chicago					
International Harvester Company.....			133	600,000	600,000
Republic Steel Corporation.....			75	460,000	460,000
Youngstown Sheet and Tube Co.....			70	444,000	444,000
TOTAL.....			727	3,284,120	3,284,120
Indiana					
East Chicago					
Youngstown Sheet and Tube Co.....			120	648,000	648,000
Gary					
United States Steel Company.....			1,148	5,855,100	5,855,100
Indiana Harbor					
Inland Steel Company.....			418	2,143,400	2,143,400
TOTAL.....			1,686	8,646,500	8,646,500
Maryland					
Sparrows Point					
Bethlehem Steel Company.....			551	2,928,000	2,928,000
Massachusetts					
Everett					
Eastern Gas and Fuel Associates.....			204	1,112,000	1,112,000
Michigan					
Dearborn					
Ford Motor Company.....			183	1,314,000	1,314,000
River Rouge					
Great Lakes Steel Corporation.....			146	1,120,000	1,120,000
TOTAL.....			329	2,434,000	2,434,000
Minnesota					
Duluth					
American Steel & Wire Company.....			114	483,600	483,600
Interlake Iron Corporation.....			61	310,000	310,000
TOTAL.....			175	793,600	793,600
New York					
Buffalo					
Donner-Hanna Coke Corporation.....			216	1,200,000	1,200,000
Lackawanna					
Bethlehem Steel Company.....			383	2,022,000	2,022,000
TOTAL.....			599	3,222,000	3,222,000
Ohio					
Campbell					
Youngstown Sheet and Tube Co.....			306	1,320,000	1,320,000
Canton					
Republic Steel Corporation.....			62	240,000	240,000
Cleveland					
American Steel & Wire Company.....			180	834,670	834,670
Jones & Laughlin Steel Corporation.....			100	360,000	360,000
Republic Steel Corporation.....			279	1,345,000	1,345,000
Hamilton					
Armco Steel Corporation.....			110	558,000	558,000
Lorain					
National Tube Company.....			385	1,766,750	1,766,750
Massillon					
Republic Steel Corporation.....			49	215,000	215,000
Portsmouth					
Detroit Steel Corporation.....			108	480,000	480,000
Toledo					
Interlake Iron Corporation.....			94	372,600	372,600
Warren					
Republic Steel Corporation.....			141	870,000	870,000
Youngstown					
Republic Steel Corporation.....			197	1,095,000	1,095,000
Youngstown Sheet and Tube Co.....			84	372,000	372,000
TOTAL.....			2,095	9,829,020	9,829,020
Pennsylvania					
Aliquippa					
Jones & Laughlin Steel Corporation.....	240	252,000	293	1,800,000	2,052,000

Coke capacity by states (continued) . . . Blast furnaces, type, company, location.

STEEL INDUSTRY

COKE CAPACITY BY STATES (CONTINUED)

	BEEHIVE		OTHER		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Bethlehem Steel Company.....	416	1,680,000	1,680,000
Brownsville Junction	296	215,000	.....	.....	215,000
Republic Steel Corporation.....	1,567	7,443,200	7,443,200
Clarton
United States Steel Company.....	72	275,600	275,600
Erie
Interlake Iron Corporation.....
Isabella	138	120,000	.....	.....	120,000
Wornton Coal Company.....	436	2,268,000	2,268,000
Johnstown	184	720,000	720,000
Bethlehem Steel Company.....	74	500,000	926,000
Midland
Crawable Steel Company of America.....
Monessen	574	426,000	.....	.....	.....
Pittsburgh Steel Company.....
Mount Pleasant	585	375,000	.....	.....	375,000
Carpenters Coal & Coke Co.....
Neville Island	105	685,000	685,000
Pittsburgh Coke & Chemical Co.....
Pittsburgh	350	1,440,000	1,440,000
Jones & Laughlin Steel Corporation.....	130	648,000	648,000
Streit	151	600,000	600,000
Bethlehem Steel Company.....
Sveedeland
Alan Wood Steel Company.....
Various	2,912	2,073,750	.....	.....	2,073,750
United States Steel Company.....	4,743	3,461,750	3,788	18,059,800	21,521,550
TOTAL.....
Tennessee
Chattanooga	44	240,000	240,000
Tennessee Products & Chemical Corp.....

	BEEHIVE		OTHER		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Texas
Houston	47	252,000	252,000
Sheffield Steel Corporation.....
Lone Star	78	438,000	438,000
Lone Star Steel Company.....
TOTAL.....	125	690,000	690,000
Utah
Dragnet
Kaiser & Frazer Parts Corporation.....	500	300,000	.....	.....	300,000
Geneva	252	1,012,300	1,012,300
Geneva Steel Company.....	56	200,000	200,000
Ironton
Geneva Steel Company.....
Sunnyside	297	100,000	.....	.....	100,000
Kaiser Steel Corporation.....
TOTAL.....	797	400,000	308	1,312,300	1,612,300
West Virginia
East Steubenville	251	1,296,000	1,296,000
Wheeling Steel Corporation.....	60	325,000	325,000
Fairmont
Sharon Steel Corporation.....	74	400,000	400,000
Morgantown
Sharon Steel Corporation.....	249	1,510,000	1,510,000
Weirton
Weirton Steel Company.....	634	3,431,000	3,431,000
TOTAL.....	5,540	3,861,750	12,743	62,922,890	66,784,640
GRAND TOTAL.....

U. S. BLAST FURNACE CAPACITY

Number, Type and Capacity of Furnaces by Companies

	PIG IRON		FERROALLOYS		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Companies:	.....	.....	.....	.....	.....
Alan Wood Steel Company.....	2	454,800	.....	.....	454,800
Allegheny Ludlum Steel Corporation.....	1	96,000	.....	.....	96,000
Armco Steel Corporation.....	5	1,341,000	.....	.....	1,341,000
Sheffield Steel Corporation.....	1	274,000	.....	.....	274,000
Valencia Iron & Chem. Corp.....	1	27,000	.....	.....	27,000
TOTAL.....	7	1,642,000	.....	.....	1,642,000
Barium Steel Corporation:	.....	.....	.....	.....	.....
Chester Blast Furnace, Inc.....	1	200,000	.....	.....	200,000
Bethlehem Steel Company.....	29	10,170,000	2	180,000	10,350,000
Brooks Iron Company (E. & O.).....	1	151,200	.....	.....	151,200
Colorado Fuel and Iron Corporation.....	6	1,308,000	.....	.....	1,308,000
Crawable Steel Company of America.....	2	532,000	.....	.....	532,000
Detroit Steel Corporation.....	1	259,200	.....	.....	259,200
Eastern Gas and Fuel Associates.....	1	200,000	.....	.....	200,000
Ford Motor Company.....	3	939,600	.....	.....	939,600
Globe Iron Company.....	.....	.....	1	90,000	90,000
Granite City Steel Co.....	2	449,680	.....	.....	449,680
Inland Steel Company.....	8	2,638,950	.....	.....	2,638,950
Interlake Iron Corporation.....	6	1,244,860	.....	.....	1,244,860
International Harvester Company.....	3	719,710	.....	.....	719,710
Jones & Laughlin Steel Corporation.....	13	4,212,000	1	93,000	4,212,000
Kaiser Steel Corporation.....	2	876,000	.....	.....	876,000
Kaiser & Frazer Parts Corporation.....	1	300,000	.....	.....	300,000
Lavino & Company, E. J.....	.....	.....	2	102,200	102,200
Lone Star Steel Company.....	1	366,600	.....	.....	366,600
National Steel Corporation:	.....	.....	.....	.....	.....
Great Lakes Steel Corporation.....	3	1,100,000	.....	.....	1,100,000
Hanna Furnace Corporation.....	3	860,000	1	120,000	980,000
Weirton Steel Company.....	3	1,240,000	.....	.....	1,240,000
TOTAL.....	9	3,000,000	1	120,000	3,120,000
New Jersey Zinc Company.....	.....	.....	1	112,000	112,000
Newport Steel Corporation.....	1	144,000	.....	.....	144,000
Pittsburgh Coke & Chemical Company.....	2	474,100	.....	.....	474,100
Pittsburgh Steel Company.....	3	954,000	.....	.....	954,000
Republic Steel Corporation.....	21	6,592,000	.....	.....	6,592,000
Sharon Steel Corporation.....	3	709,620	.....	.....	709,620
Shenango Furnace Company.....	2	417,300	.....	.....	417,300
Sloss Sheffield Steel & Iron Company.....	3	386,470	1	36,860	423,330
Tennessee Products & Chemical Corp.....	3	142,510	.....	.....	142,510
Tonawanda Iron Division.....	1	171,000	.....	.....	171,000
United States Steel Corporation:	.....	.....	.....	.....	.....
American Steel & Wire Company.....	6	1,429,400	.....	.....	1,429,400
Geneva Steel Company.....	4	1,399,200	.....	.....	1,399,200
National Tube Company.....	9	3,098,700	.....	.....	3,098,700
Tennessee Coal, Iron & Railroad Co.....	9	2,468,500	(a)	29,000	2,497,500
United States Steel Company.....	49	17,420,400	4	335,400	17,755,800
TOTAL.....	77	25,816,200	4	364,400	26,180,600
Wheeling Steel Corporation.....	6	1,678,500	.....	.....	1,678,500
Woodward Iron Company.....	3	592,760	.....	.....	592,760
Youngstown Sheet & Tube Company.....	12	3,616,000	.....	.....	3,616,000
GRAND TOTAL.....	236	71,455,060	14	1,098,400	72,553,460

BLAST FURNACE CAPACITY BY STATES

Number and Type of Blast Furnaces by Plant Location

	PIG IRON		FERROALLOYS		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Plant Location and Operating Company:	.....	.....	.....	.....	.....
Alabama	.....	.....	.....	.....	.....
Birmingham	.....	.....	.....	.....	.....
Republic Steel Corporation.....	2	456,000	.....	.....	456,000
Sloss Sheffield Steel & Iron Company.....	2	281,230	.....	.....	281,230
Enaley	.....	.....	(a)	29,000	1,481,800
Tennessee Coal, Iron & Railroad Co.....	6	1,452,600	.....	.....	1,452,600
Fairfield	.....	.....	.....	.....	.....
Tennessee Coal, Iron & Railroad Co.....	3	1,015,700	.....	.....	1,015,700
Gadsden	.....	.....	.....	.....	.....
Republic Steel Corporation.....	2	471,000	.....	.....	471,000
North Birmingham	.....	.....	.....	.....	.....
Sloss Sheffield Steel & Iron Company.....	1	105,240	1	36,800	142,040
Woodward	.....	.....	.....	.....	.....
Woodward Iron Company.....	3	592,760	.....	.....	592,760
TOTAL.....	19	4,374,730	1	65,800	4,440,530
California	.....	.....	.....	.....	.....
Fontana	.....	.....	.....	.....	.....
Kaiser Steel Corporation.....	2	876,000	.....	.....	876,000
Colorado	.....	.....	.....	.....	.....
Pueblo	.....	.....	.....	.....	.....
Colorado Fuel and Iron Corporation.....	4	918,000	.....	.....	918,000
Illinois	.....	.....	.....	.....	.....
Chicago	.....	.....	.....	.....	.....
Interlake Iron Corporation.....	2	448,020	.....	.....	448,020
Granite City	.....	.....	.....	.....	.....
Granite City Steel Co.....	2	449,680	.....	.....	449,680
South Chicago	.....	.....	.....	.....	.....
International Harvester Company.....	3	719,710	.....	.....	719,710
Republic Steel Corporation.....	1	450,000	.....	.....	450,000
United States Steel Company.....	11	4,196,700	.....	.....	4,196,700
Youngstown Sheet & Tube Company.....	3	684,000	.....	.....	684,000
TOTAL.....	22	6,948,110	.....	.....	6,948,110
Indiana	.....	.....	.....	.....	.....
East Chicago	.....	.....	.....	.....	.....
Youngstown Sheet & Tube Company.....	2	779,200	.....	.....	779,200
Jary	.....	.....	.....	.....	.....
United States Steel Company.....	12	4,721,400	.....	.....	4,721,400
Indiana Harbor	.....	.....	.....	.....	.....
Inland Steel Company.....	8	2,638,950	.....	.....	2,638,950
TOTAL.....	22	8,139,550	.....	.....	8,139,550
Kentucky	.....	.....	.....	.....	.....
Ashland	.....	.....	.....	.....	.....
Armco Steel Corporation.....	3	777,000	.....	.....	777,000
Maryland	.....	.....	.....	.....	.....
Sparrows Point	.....	.....	.....	.....	.....
Bethlehem Steel Company.....	8	3,252,000	.....	.....	3,252,000
Massachusetts	.....	.....	.....	.....	.....
Everett	.....	.....	.....	.....	.....
Eastern Gas and Fuel Associates.....	1	200,000	.....	.....	200,000

STEEL INDUSTRY

Blast furnace capacities (continued) . . . Steel Capacity: Type, location, company

BLAST FURNACES BY STATES (CONT.)

		PIG IRON		FERROALLOYS		Total annual capacity (N. T.)
		No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Michigan						
Dearborn						
Ford Motor Company	3	939,600	...	...	...	939,600
River Rouge						
Great Lakes Steel Corporation	3	1,100,000	...	...	...	1,100,000
TOTAL	6	2,039,600	...	...	...	2,039,600
Minnesota						
Duluth						
American Steel & Wire Company	2	449,400	...	...	...	449,400
Interlake Iron Corporation	1	131,660	...	...	...	131,660
TOTAL	3	581,060	...	...	...	581,060
New York						
Buffalo						
Hanna Furnace Corporation	3	660,000	1	120,000	...	780,000
Republic Steel Corporation	2	618,000	...	...	...	618,000
Lackawanna						
Bethlehem Steel Company	6	2,472,000	...	...	...	2,472,000
North Tonawanda						
Tonawanda Iron Division	1	171,000	...	...	...	171,000
Tonawanda						
Colorado Fuel & Iron Corporation	2	390,000	...	...	...	390,000
Troy						
Republic Steel Corporation	1	263,000	...	...	...	263,000
TOTAL	15	4,574,000	1	120,000	...	4,694,000
Ohio						
Campbell						
Youngtown Sheet and Tube Company	4	1,450,800	...	...	...	1,450,800
Canton						
Republic Steel Corporation	1	235,000	...	...	...	235,000
Cleveland						
American Steel & Wire Company	2	530,000	...	...	...	530,000
Jones & Laughlin Steel Corporation	2	540,000	...	...	...	540,000
Republic Steel Corporation	5	1,685,000	...	...	...	1,685,000
Hamilton						
Armco Steel Corporation	2	564,000	...	...	...	564,000
Hulliard						
Youngtown Sheet and Tube Company	1	200,400	...	...	...	200,400
Jackson			1	90,000	...	90,000
Globe Iron Company	...	...	1	93,000	...	93,000
Jackson Iron & Steel Company	...	...	...	...	...	...
Lorain						
National Tube Company	5	1,818,400	...	...	...	1,818,400
Lowellville						
Sharon Steel Corporation	1	148,620	...	...	...	148,620
Martins Ferry						
Newport Steel Corporation	1	144,000	...	...	...	144,000
Meskill						
Republic Steel Corporation	1	238,000	...	...	...	238,000
Portsmouth						
Detroit Steel Corporation	1	259,200	...	...	...	259,200
Stuebenville						
Wheeling Steel Corporation	5	1,444,500	...	...	...	1,444,500
Struthers						
Pittsburgh Coke & Chemical Company	1	182,500	...	...	...	182,500
Toledo						
Interlake Iron Corporation	2	497,600	...	...	...	497,600
Warren						
Republic Steel Corporation	1	516,000	...	...	...	516,000
Youngtown						
Republic Steel Corporation	5	1,660,000	...	...	...	1,660,000
United States Steel Company	6	1,891,600	...	...	...	1,891,600
Youngtown Sheet and Tube Company	2	501,600	...	...	...	501,600
TOTAL	48	14,507,220	2	183,000	...	14,690,220
Pennsylvania						
Aliquippa						
Jones & Laughlin Steel Corporation	5	1,800,000	...	...	...	1,800,000
Bethlehem						
Bethlehem Steel Company	7	2,160,000	...	...	...	2,160,000
Birdsboro						
Brooke Iron Company, E. & G.	1	151,200	...	...	...	151,200
Bradock						
United States Steel Company	7	2,602,700	...	...	...	2,602,700
Brackenridge						
Allegheny Ludlum Steel Corporation	1	96,000	...	...	...	96,000

	PIG IRON		FERROALLOYS		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Chester					
Chester Blast Furnace, Inc.	1	200,000	..	..	200,000
Clairton	..	..	..	..	614,000
United States Steel Company	2	528,500	1	85,200	614,000
Donora	..	..	..	..	450,000
American Steel & Wire Company	2	450,000	..	..	450,000
Duquesne	..	..	..	..	1,451,400
United States Steel Company	5	1,346,200	1	105,200	1,451,400
Erie	..	..	..	..	167,580
Interlake Iron Corporation	1	167,580	..	..	167,580
Etna	..	..	..	..	145,000
United States Steel Company	..	..	2	145,000	145,000
Farrell	..	..	..	..	561,000
Sharon Steel Corporation	2	561,000	..	..	561,000
Johnstown	..	..	..	..	1,674,000
Bethlehem Steel Company	5	1,494,000	2	180,000	1,674,000
McKeesport	..	..	..	..	1,280,300
National Tube Company	4	1,280,300	..	..	1,280,300
Midland	..	..	..	..	532,000
Crucible Steel Company of America	2	532,000	..	..	532,000
Monessen	..	..	..	..	954,000
Pittsburgh Steel Company	3	954,000	..	..	954,000
Neville Island	..	..	..	..	291,600
Pittsburgh Coke & Chemical Company	1	291,600	..	..	291,600
Palmerston	..	..	..	..	112,000
New Jersey Zinc Company	..	..	2	112,000	112,000
Pittsburgh	..	..	..	..	1,872,000
Jones & Laughlin Steel Corporation	6	1,872,000	..	..	1,872,000
Rankin	..	..	..	..	2,133,000
United States Steel Company	6	2,133,000	..	..	2,133,000
Sharpsville	..	..	..	..	417,300
Shenango Furnace Company	2	417,300	..	..	417,300
Sheridan	..	..	..	..	51,100
Lavino and Company, E. J.	..	..	1	51,100	51,100
Steeleton	..	..	..	..	792,000
Bethlehem Steel Company	3	792,000	..	..	792,000
Swedeland	..	..	..	..	454,800
Alan Wood Steel Company	2	454,800	..	..	454,800
TOTAL	68	20,284,480	9	678,500	20,962,980
Tennessee					
Lyles-Wrigley	..	..	..	..	40,320
Tennessee Products & Chemical Corp.	1	40,320	..	..	40,320
Rockwood	..	..	..	..	102,190
Tennessee Products & Chemical Corp.	2	102,190	..	..	102,190
TOTAL	3	142,510	..	..	142,510
Texas					
Houston	..	..	..	..	274,000
Sheffield Steel Corporation	1	274,000	..	..	274,000
Lone Star	..	..	..	..	366,600
Lone Star Steel Company	1	366,600	..	..	366,600
Rusk	..	..	..	..	27,000
Valencia Iron & Chemical Corporation	1	27,000	..	..	27,000
TOTAL	3	667,600	..	..	667,600
Utah					
Geneva	..	..	..	..	1,200,000
Geneva Steel Company	3	1,200,000	..	..	1,200,000
Ironton	..	..	..	..	300,000
Kaiser & Frazer Parts Corporation	1	300,000	..	..	300,000
Geneva Steel Company	1	199,200	..	..	199,200
TOTAL	5	1,699,200	..	..	1,699,200
Virginia					
Lynchburg	..	..	..	..	51,100
Lavino and Company, E. J.	..	..	1	51,100	51,100
West Virginia					
Benwood	..	..	..	..	234,000
Wheeling Steel Corporation	1	234,000	..	..	234,000
Weirton	..	..	..	..	1,240,000
Weirton Steel Company	3	1,240,000	..	..	1,240,000
TOTAL	4	1,474,000	..	..	1,474,000
GRAND TOTAL	236	71,455,060	14	1,098,400	72,553,460

(a) Furnace included under pig iron.

STEEL CAPACITY OF THE U. S. BY TYPE AND COMPANY Number and Capacity of Openhearth, Bessemer and Electric Furnaces, with Totals

	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Companies							
Alan Wood Steel Co.	7	550,000	.....	.....	.....	.....	550,000
Allegheny Ludlum Steel Corporation	7	260,160	.....	.....	28	572,200	832,360
American Locomotive Co.	6	181,000	.....	.....	.....	.....	181,000
Armco Steel Corporation	25	2,620,000	.....	.....	9	396,000	3,016,000
Sheffield Steel Corp.	14	1,314,000	.....	.....	.....	.....	1,314,000
TOTAL	39	3,934,000	.....	.....	9	396,000	4,330,000
Atlantic Steel Company	3	188,000	.....	.....	.....	.....	188,000

	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Babcock & Wilcox Tube Company					3	64,800	64,800
Baldwin-Lima-Hamilton Corp.	5	149,280			(a) 1	20	149,300
Barium Steel Corporation							
Central Iron & Steel Co.	5	360,000			1	46,000	406,000
Industrial Forge & Steel, Inc.	2	48,600					48,600
Phoenix Iron & Steel Co.	6	431,430					431,430
TOTAL	13	840,030			1	46,000	886,030

Steel capacity by companies (continued) ... Geographic location of steel capacity

STEEL INDUSTRY

STEEL CAPACITY BY COMPANIES (CONT.)

Total annual capacity (N. T.)		OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
		No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
200,000	Bethlehem Steel Corp.	122	14,486,000	6	576,000	8	158,000	15,220,000
614,000	Bethlehem Steel Co.	13	540,000	2	240,000	2	240,000	780,000
450,000	Bethlehem Pacific Coast Steel Corp.	135	15,026,000	6	576,000	10	398,000	16,000,000
1,451,400	TOTAL							
167,580	Borg-Warner Corporation					3	28,350	28,350
145,000	Board Steel Corp.					2	50,760	50,760
561,000	Brethurn Alloy Steel Corp.					2	20,730	20,730
1,674,000	Byers Company, A. M.					2	75,000	75,000
280,380	Carpenter Steel Company					7	81,360	81,360
532,000	Colorado Fuel & Iron Corp.	20	1,560,000					1,560,000
954,000	Claymont Steel Corp.	7	468,000					468,000
291,000	TOTAL	27	2,028,000					2,028,000
112,000	Columbia Tool Steel Co.					2	6,600	6,600
872,000	Connors Steel Co.					2	60,000	60,000
1,133,000	Continental Steel Corp.	5	393,760			7	554,400	393,760
417,300	Copperfield Steel Co.							554,400
51,100	Crucible Steel Company of America	11	867,000			24	286,440	1,153,440
792,000	Detroit Steel Corp.	10	650,000					650,000
1,133,000	Dixton & Sons, Inc.					2	25,000	25,000
417,300	Edgewater Steel Co.					4	12,000	12,000
51,100	Empire Steel Company	3	146,470					146,470
792,000	Eno Forge Company	6	390,320					390,320
454,800	Firth Sterling Steel and Carbide Corp.	3	85,000					85,000
1,962,980	Ford Motor Company	10	1,246,580			17	20,040	20,040
40,320	Granite City Steel Co.	13	720,000			3	225,360	1,471,940
102,190	Harsburg Steel Corp.	3	100,750					720,000
142,510	Heppenstall Company	2	39,880			1	3,000	100,750
274,000	Inland Steel Company	36	3,750,000					42,880
366,600	International Harvester Company	11	900,000					3,750,000
27,000	Isaacson Iron Works					2	101,520	900,000
667,600	Jensop Steel Company					4	41,560	101,520
2,000,000	Jones & Laughlin Steel Corporation	30	3,927,000	6	918,000	1	1,500	4,846,500
300,000	Joslyn Mfg. & Supply Co.					3	37,500	37,500
199,200	Judson Steel Corporation	3	76,500					76,500
699,200	Kaiser Steel Corp.	7	1,200,000					1,200,000
	Keystone Steel & Wire Co.	3	325,000			3	34,020	325,000
	Kilby Steel Company	7	325,000			3	34,020	34,020
	Knoxville Iron Company	4	397,840			2	38,000	38,000
	Laclede Steel Company	4	397,840			4	12,000	397,840
	Lafayette Electric Steel Co.	12	675,000					12,000
	Lukens Steel Company							675,000
	McLouth Steel Corporation	4	85,000			4	420,000	420,000
	Mesta Machine Company	6	324,430			1	20,000	105,000
	Midvale Company					9	92,940	417,370
	National Forge & Ordnance Company					3	25,000	25,000
	National Steel Corp.	17	2,450,000	(c) 2				2,450,000
	Great Lakes Steel Corp.	12	2,300,000	(c) 2				2,300,000
	Weirton Steel Co.	29	4,750,000	(c) 4				4,750,000
	TOTAL	29	4,750,000	(c) 4				4,750,000
	National Supply Co.					3	50,400	50,400
	(b) Newport News Shipbuilding & Dry Dock Co.					3	12,000	12,000
	Newport Steel Corp.	7	413,100			3	291,600	704,700
	Northwest Steel Rolling Mills, Inc.					1	32,400	32,400
	Northwestern Steel & Wire Co.					3	321,000	321,000
	Ohio River Steel Corp.	4	121,200			3	110,000	121,200
	Oregon Steel Mills					2	91,300	110,000
	Pacific States Steel Corp.	2	140,000					21,300
	Pittsburgh Steel Co.	12	1,072,000					1,072,000
	Reconstruction Finance Corp.					5	360,000	360,000
	Republic Steel Corp.	74	7,202,000	2	665,000	21	1,100,000	8,967,000
	Rollingsons Sons Co., J. A.	9	204,870			5	425,000	204,870
	Rotary Electric Steel Co.					2	60,000	425,000
	Sharon Steel Corp.	19	1,381,400			3	21,600	1,441,400
	Simonds Saw & Steel Co.							21,600
	(b) Southwest Steel Rolling Mills					1	36,000	36,000
	Stanley Works	3	188,280					188,280
	Texas Steel Company					2	22,320	22,320
	Timken Roller Bearing Company	3	201,600			6	345,600	547,200
	Union Electric Steel Corp.					2	26,760	26,760
	United States Steel Corp.							
	American Steel & Wire Company	26	2,068,000			1	12,000	2,068,000
	Columbia Steel Co.	11	566,400					578,400
	Geneva Steel Co.	9	1,440,000					1,440,000
	National Tube Co.	15	2,226,000	6	1,188,000			3,414,000
	Tennessee Coal, Iron & Railroad Company	21	2,920,000	(c) 3				2,920,000
	United States Steel Co.	231	21,746,000	(d) 8	1,284,000	13	418,300	23,448,300
	TOTAL	313	30,966,400	17	2,472,000	14	430,300	33,868,700
	Universal-Cyclops Steel Corporation					4	54,120	54,120
	Vacuum Melt, Inc.					3	1,800	1,800
	Vanadium-Alloys Steel Co.					3	11,910	11,910

Total annual capacity (N. T.)	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Colonial Steel Co.					1	7,020	7,020
TOTAL					4	18,930	18,930
Vulcan Crucible Steel Co.	4	93,000			2	9,600	102,600
Washburn Wire Co.	11	1,440,000	3	420,000			1,860,000
Wheeling Steel Corp.	33	3,680,000	4	570,000			4,250,000
Youngstown Sheet and Tube Company	947	91,310,850	(c) 41	5,621,000	(f) 257	7,570,830	104,502,680
GRAND TOTAL	947	91,310,850	(c) 41	5,621,000	(f) 257	7,570,830	104,502,680
Kinds:							
Open hearth—basic	910	90,364,780					90,364,780
Open hearth—acid	37	946,070					946,070
Bessemer			(c) 41	5,621,000			5,621,000
Electric					256	7,570,810	7,570,810
Crucible					1	20	20
TOTAL	947	91,310,850	(c) 41	5,621,000	257	7,570,830	104,502,680
Steel for castings included above		230,000				124,790	354,870

STEEL CAPACITY BY STATES

Number and Capacity of Furnaces by Type, Location

Alabama							
Aniston							
Kilby Steel Co.			3	34,020	34,020		
Birmingham							
Connors Steel Co.			2	60,000	60,000		
Ensley							
Tennessee Coal, Iron & Railroad Company	9	1,568,000	(c) 3		1,568,000		
Fairfield							
Tennessee Coal, Iron & Railroad Company	12	1,352,000			1,352,000		
Gadsden							
Republic Steel Corp.	8	745,000			745,000		
TOTAL	29	3,665,000	(c) 3	5	94,020	3,759,020	
California							
Emeryville							
Judson Steel Corp.	3	76,500			76,500		
Fontana							
Kaiser Steel Corp.	7	1,200,000			1,200,000		
Los Angeles							
Bethlehem Pacific Coast Steel Corp.	3	84,000		2	240,000	324,000	
(b) Southwest Steel Rolling Mills				1	36,000	36,000	
Niles							
Pacific States Steel Corp.	2	140,000		2	91,300	231,300	
Pittsburg							
Columbia Steel Co.	7	364,700				364,700	
South San Francisco							
Bethlehem Pacific Coast Steel Corp.	5	240,000				240,000	
Torrance							
Columbia Steel Co.	4	201,700		1	12,000	213,700	
National Supply Co.				3	50,400	50,400	
TOTAL	31	2,306,900		9	429,700	2,736,600	
Colorado							
Pueblo							
Colorado Fuel and Iron Corp.	16	1,320,000				1,320,000	
Connecticut							
Bridgeport							
Stanley Works	3	188,280				188,280	
Delaware							
Claymont							
Claymont Steel Corp.	7	468,000				468,000	
Georgia							
Atlanta							
Atlantic Steel Co.	3	188,000				188,000	
Illinois							
Alton							
Laclede Steel Co.	4	397,840				397,840	
Chicago Heights							
American Locomotive Co.	3	78,000				78,000	
Columbia Tool Steel Co.				2	6,600	6,600	
Granite City							
Granite City Steel Co.	13	720,000				720,000	
Peoria							
Keystone Steel & Wire Co.	3	325,000				325,000	
South Chicago							
International Harvester Company	11	900,000				900,000	
Republic Steel Corp.	4	500,000		9	600,000	1,100,000	
United States Steel Co.	31	3,905,000	3	500,000	8	270,000	4,675,000
Sterling							
Northwestern Steel & Wire Company				3	321,000	321,000	
TOTAL	69	6,825,840	3	500,000	22	1,197,600	8,523,440
Indiana							
East Chicago							

STEEL INDUSTRY

Steel capacity by states (continued) . . .

STEEL CAPACITY BY STATES (Cont.)

	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Youngstown Sheet and Tube Company.....	9	1,196,000	2	330,000			1,526,000
Fort Wayne Joslyn Mfg. & Supply Company.....					3	37,500	37,500
Gary United States Steel Co.....	55	6,025,700	(c) 3				6,025,700
Indiana Harbor Inland Steel Company.....	36	3,750,000					3,750,000
Kokomo Continental Steel Corp.....	5	393,760					393,760
New Castle Borg-Warner Corp.....					3	28,350	28,350
TOTAL.....	105	11,365,460	5	330,000	6	65,850	11,761,310
Kentucky							
Ashland Armco Steel Corporation.....	8	900,000					900,000
Newport Newport Steel Corp.....	7	413,100			3	291,600	704,700
TOTAL.....	15	1,313,100			3	291,600	1,604,700
Maryland							
Baltimore Armco Steel Corporation.....					6	102,000	102,000
Colgate Eastern Stainless Steel Corp.....					4	12,000	12,000
Sparrows Point Bethlehem Steel Co.....	28	4,824,000	3	336,000			5,160,000
TOTAL.....	28	4,824,000	3	336,000	10	114,000	5,274,000
Massachusetts							
Worcester American Steel & Wire Company.....	4	250,000					250,000
Michigan							
Dearborn Ford Motor Company.....	10	1,246,580			17	225,360	1,471,940
Detroit Rotary Electric Steel Company.....					5	425,000	425,000
Ecorse Great Lakes Steel Corp.....	17	2,450,000	(c) 2				2,450,000
Ferndale Allegheny Ludlum Steel Corporation.....					5	3,000	3,000
Trenton McLouth Steel Corp.....					4	420,000	420,000
TOTAL.....	27	3,696,580	(c) 2		31	1,073,360	4,769,940
Minnesota							
Duluth American Steel & Wire Company.....	9	918,000					918,000
Missouri							
Kansas City Sheffield Steel Corp.....	5	420,000					420,000
New Jersey							
Harrison Crucible Steel Company of America.....					12	2,160	2,160
Roebbing Roebbing's Sons Co., J. A.....	9	204,870					204,870
TOTAL.....	9	204,870			12	2,160	207,030
New York							
Buffalo Republic Steel Corp.....	9	870,000					870,000
Dunkirk Allegheny Ludlum Steel Corporation.....					3	33,000	33,000
Lackawanna Bethlehem Steel Co.....	30	3,920,000					3,920,000
Lockport Simonds Saw & Steel Co.....					3	21,600	21,600
Syracuse Crucible Steel Company of America.....					6	56,280	56,280
Tonawanda Allegheny Ludlum Steel Corporation.....					2	4,500	4,500
Colorado Fuel & Iron Corp.....	4	240,000					240,000
Watervliet Allegheny Ludlum Steel Corporation.....					3	25,000	25,000
TOTAL.....	43	5,030,000			17	140,380	5,170,380
Ohio							
Campbell Youngtown Sheet and Tube Company.....	12	1,302,000	2	240,000			1,542,000
Canton Industrial Forge & Steel, Inc.....	2	48,600					48,600
Reconstruction Finance Corp.....					5	360,000	360,000

	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Republic Steel Corp.....	6	475,000			12	500,000	975,000
Timken Roller Bearing Co.....	3	201,600			6	345,600	547,200
Cleveland Jones & Laughlin Steel Corp.....	9	945,000					945,000
Republic Steel Corp.....	15	1,637,000					1,637,000
Lorain National Tube Co.....	12	1,350,000	3	900,000			2,250,000
Lowellville Sharon Steel Corp.....	5	400,000			2	60,000	460,000
Mansfield Empire Steel Co.....	6	390,320					390,320
Massillon Republic Steel Corp.....	9	610,000					610,000
Middletown Armco Steel Corp.....	11	1,312,000			2	228,000	1,540,000
Potomac Detroit Steel Corp.....	10	650,000					650,000
Steuersville Wheeling Steel Corp.....	11	1,440,000					1,440,000
Toronto Ohio River Steel Corp.....	4	121,200					121,200
Warren Copperweld Steel Co.....					7	554,400	554,400
Republic Steel Corp.....	8	900,000					900,000
Youngstown Republic Steel Corp.....	15	1,465,000	2	665,000			2,130,000
United States Steel Co.....	15	1,700,000	2	784,000			2,484,000
Youngstown Sheet and Tube Co.....	12	1,182,000					1,182,000
TOTAL.....	165	16,129,720	9	2,589,000	34	2,048,000	20,766,720
Oklahoma							
Sand Springs Sheffield Steel Corp.....	1	54,000					54,000
Oregon							
Portland Oregon Steel Mills.....					3	110,000	110,000
Pennsylvania							
Aliquippa Jones & Laughlin Steel Corp.....	5	1,182,000	3	582,000			1,764,000
Vulcan Crucible Steel Co.....					2	9,600	9,600
Beaver Falls Babcock & Wilcox Tube Co.....					2	64,800	64,800
Bethlehem Bethlehem Steel Co.....	32	2,922,000			8	158,000	3,080,000
Allegheny Ludlum Steel Corp.....	7	260,160			15	506,700	766,860
Braddock United States Steel Co.....	16	2,080,400					2,080,400
Braeburn Braeburn Alloy Steel Corp.....					2	20,730	20,730
Bridgeville Universal-Cyclops Steel Corp.....					4	54,120	54,120
Burnham Baldwin-Lima-Hamilton Corp.....	5	149,280			(a) 1	20	149,300
Butler Armco Steel Corporation.....	6	408,000			1	66,000	474,000
Carnegie Union Electric Steel Corporation.....					2	26,760	26,760
Clairton United States Steel Co.....	12	870,000					870,000
Coatesville Lukens Steel Company.....	12	675,000					675,000
Donora American Steel & Wire Company.....	13	900,000					900,000
Duquesne United States Steel Co.....	27	1,800,000			4	142,800	1,942,800
Erie Erie Forge Company.....	3	85,000					85,000
Farrell Sharon Steel Corp.....	14	981,400					981,400
Greenville Vacuum Melt, Inc.....					3	1,800	1,800
Harmony Township Byers Company, A. M.....					2	75,000	75,000
Harrisburg Central Iron & Steel Co.....	5	360,000			1	46,000	406,000
Harrisburg Steel Co.....	3	190,750					190,750
Irvine National Forge & Ordnance Company.....					3	25,000	25,000
Ivy Rock Alan Wood Steel Co.....	7	550,000					550,000
Johnstown Bethlehem Steel Co.....	21	1,788,000	3	240,000			2,028,000
United States Steel Co.....	2	18,900			1	5,500	24,400
Latrobe American Locomotive Company.....	3	103,000					103,000
Latrobe Electric Steel Company.....					4	12,000	12,000

Steel capacity by states (continued) . . . Total U. S. finished hot-rolled capacity

STEEL INDUSTRY

STEEL CAPACITY BY STATES (CONT.)

	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Vanadium-Alloys Steel Company					3	11,910	11,910
McKeesport							
Firth Sterling Steel & Carbide Corp.					3	20,040	20,040
National Tube Co.	3	876,000	3	288,000			1,164,000
Midland							
Crucible Steel Company of America	11	857,000			6	228,000	1,095,000
Milton							
Boards Steel Corp.					2	50,760	50,760
Monaca							
Colonial Steel Co.					1	7,020	7,020
Monessen							
Pittsburgh Steel Co.	12	1,072,000					1,072,000
Munhall							
United States Steel Co.	61	4,866,000					4,866,000
Oakmont							
Edgewater Steel Co.	3	146,470					146,470
Philadelphia							
Dixton & Sons, Inc.					2	25,000	25,000
Henry					9	92,940	417,370
Midvale Company	6	324,430					
Phoenixville							
Phoenix Iron & Steel Co.	6	431,430					431,430
Pittsburgh							
Heppenstall Company	2	39,880			1	3,000	42,880
Jones & Laughlin Steel Corporation	16	1,800,000	3	336,000	1	1,500	2,137,500
Reading					7	81,360	81,360
Carpenter Steel Co.							
Steeltown							
Bethlehem Steel Co.	11	1,032,000					1,032,000
Vandergrift							
United States Steel Co.	12	480,000					480,000
Washington							
Jessop Steel Company					4	41,560	41,560
West Homestead							
Mesta Machine Co.	4	85,000			1	20,000	105,000
TOTAL	340	27,254,100	12	1,446,000	(f) 95	1,797,920	30,498,020
Rhode Island							
Phillipsdale							
Washburn Wire Co.	4	93,000					93,000
Tennessee							
Knoxville					2	38,000	38,000
Knoxville Iron Co.							

	OPEN HEARTH		BESSEMER		ELECTRIC AND CRUCIBLE		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
TEXAS							
Fort Worth							
Texas Steel Company					2	22,320	22,320
Houston							
Sheffield Steel Corporation	8	840,000					840,000
TOTAL	8	840,000			2	22,320	862,320
Utah							
Geneva							
Geneva Steel Co.	9	1,440,000					1,440,000
Virginia							
Newport News							
(b) Newport News Shipbuilding & Dry Dock Company					3	12,000	12,000
Washington							
Seattle							
Bethlehem Pacific Coast Steel Corp.	5	216,000			2	101,520	216,000
Isaacson Iron Works					1	32,400	101,520
Northwest Steel Rolling Mills, Inc.							
TOTAL	5	216,000			3	133,920	349,920
West Virginia							
Benwood							
Wheeling Steel Corp.			2	420,000			420,000
Weirton							
Weirton Steel Co.	12	2,300,000	(c) 2				2,300,000
TOTAL	12	2,300,000	4	420,000			2,720,000
GRAND TOTAL	947	91,310,850	(e) 41	5,621,000	(f) 257	7,570,830	104,502,680

- (a) Crucible furnace.
(b) Not described in this Directory.
(c) Used in melting charge for open hearth furnaces.
(d) Includes 3 converters used only in melting charge for open hearth furnaces.
(e) Includes 10 converters used only in melting charge for open hearth furnaces.
(f) Includes 1 crucible furnace, annual capacity, 20 tons.

TOTAL FINISHED HOT-ROLLED PRODUCTS BY COMPANIES

Total Finished Iron and Steel Hot-rolled Product Capacities by Companies

Products	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
Companies:			
Acme Steel Company	545,000		545,000
Alan Wood Steel Company	431,100		431,100
Allegheny Ludlum Steel Corporation	314,650		314,650
American Chain & Cable Company, Inc.	175,000		175,000
American Locomotive Company	123,000		123,000
American Swedol Iron Corporation	12,000		12,000
Ames & Company, Inc.	35,000		35,000
Armco Steel Corporation	2,077,940		2,077,940
Sheffield Steel Corporation	1,013,200		1,013,200
TOTAL	3,091,140		3,091,140
Atlantic Steel Company	145,000		145,000
Babcock & Wilcox Tube Company	39,600		39,600
Baldwin-Lima-Hamilton Corporation	91,750		91,750
Berlin Steel Corporation:			
Central Iron and Steel Company	288,000		288,000
Phoenix Iron & Steel Company	259,000		259,000
TOTAL	547,000		547,000
Bethlehem Steel Corporation:			
Bethlehem Steel Company	11,746,000		11,746,000
Bethlehem Pacific Coast Steel Corporation	622,000		622,000
TOTAL	12,368,000		12,368,000
Boards Steel Corporation	80,000		80,000
Borg-Warner Corporation	300,000		300,000
Braeburn Alloy Steel Corporation	3,200		3,200
Buffalo Bolt Company	65,600		65,600
Buffalo Steel Company	80,000		80,000
Byers Company, A. M.	210,000	310,000	520,000
Carpenter Steel Company	24,600		24,600
Colorado Fuel and Iron Corporation	1,162,500		1,162,500
Claymont Steel Corporation	300,000		300,000
TOTAL	1,462,500		1,462,500
Columbia Tool Steel Company	1,800		1,800
Conners Steel Company	94,000		94,000
Continental Steel Corporation	285,000		285,000

Products	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
Copperweld Steel Company	375,000		375,000
Crucible Steel Company of America	670,100		670,100
Detroit Steel Corporation	180,000		180,000
Dixton & Sons, Inc.	38,600		38,600
Driver Company, Wilbur B.	6,000		6,000
Eastern Stainless Steel Corporation	18,000		18,000
Edgewater Steel Company	81,960		81,960
Empire Steel Company	144,000		144,000
Falls Hollow Staybolt Company		8,000	8,000
Firth Sterling Steel and Carbide Corporation	11,550		11,550
Ford Motor Company	1,120,000		1,120,000
Granite City Steel Company	490,800		490,800
Harriburg Steel Corporation	75,000		75,000
Heller Brothers Company	18,000		18,000
Highland Iron & Steel, Inc.	40,500	4,500	45,000
Inland Steel Company	3,050,000		3,050,000
International Harvester Company	677,300		677,300
Jersey Shore Steel Company	30,000		30,000
Jessop Steel Company	20,000		20,000
Jones & Laughlin Steel Corporation	3,886,200		3,886,200
Joslyn Manufacturing & Supply Company	18,000		18,000
Judson Steel Corporation	54,000		54,000
Kaiser Steel Corporation	288,000		288,000
Keystone Steel & Wire Company	282,000		282,000
Knoxville Iron Company	90,000		90,000
Laclede Steel Company	427,500		427,500
Latrobe Electric Steel Company	5,500		5,500
Lockhart Iron and Steel Company	30,000	30,000	60,000
Lukens Steel Company	486,000		486,000
McLouth Steel Corporation	552,300		552,300
Mahoning Valley Steel Company	120,000		120,000
Midvale Company	60,000		60,000
Missouri Rolling Mill Corporation	70,000		70,000
National Steel Corporation:			
Great Lakes Steel Corporation	2,695,000		2,695,000
Weirton Steel Company	2,275,000		2,275,000
TOTAL	4,970,000		4,970,000
Newport Steel Corporation	480,000		480,000
Northern Steel Inc.	15,000		15,000
Northwest Steel Rolling Mills, Inc.	25,000		25,000
Northwestern Steel & Wire Company	218,000		218,000

STEEL INDUSTRY

Finished hot-rolled capacity (continued)
... Hot-rolled capacity by products, states

FINISHED HOT-ROLLED PRODUCTS (continued)

Products	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
Oregon Steel Mills	100,000		100,000
Pacific States Steel Corporation	155,000		155,000
Parkersburg Steel Company	36,000		36,000
Superior Sheet Steel Division	140,000		140,000
TOTAL	176,000		176,000
Phoenix Manufacturing Company	15,000		15,000
Pittsburgh Steel Company	660,000		660,000
Pollak Steel Company	90,000		90,000
Poor & Company	12,000		12,000
Reeves Steel and Manufacturing Company	75,000		75,000
Republic Steel Corporation	7,155,000		7,155,000
Roebing's Sons Company (John A.)	162,000		162,000
Rotary Electric Steel Company	180,000		180,000
Sharon Steel Corporation	645,000		645,000
Niles Rolling Mill Company	150,000		150,000
TOTAL	795,000		795,000
Sheet Steel Mills Inc.	55,000		55,000
Simmons Company	36,000		36,000
Simonds Saw and Steel Company	11,180		11,180
Stanley Works	130,000		130,000
Superior Steel Corporation	115,000		115,000
Sweet's Steel Company	104,000		104,000
Texas Steel Company	68,000		68,000

Products	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
Timken Roller Bearing Company	329,500		329,500
Tredegar Company	47,000		47,000
United States Steel Corporation:			
American Steel and Wire Company	2,181,640		2,181,640
Columbia Steel Company	847,020		847,020
Geneva Steel Company	1,595,000		1,595,000
National Tube Company	2,759,800		2,759,800
Tennessee Coal, Iron and Railroad Company	2,954,900		2,954,900
United States Steel Company	17,194,860		17,194,860
TOTAL	27,533,220		27,533,220
Universal-Cyclops Steel Corporation	52,300		52,300
Vanadium-Alloys Steel Company	6,000		6,000
Colonial Steel Company	7,840		7,840
TOTAL	13,840		13,840
Vulcan Crucible Steel Company	3,000		3,000
Washburn Wire Company	122,200		122,200
West Virginia Steel and Mfg. Company	140,000		140,000
Wheeling Steel Corporation	1,566,000		1,566,000
Whitney Apollo Corporation (The)	132,000		132,000
Wickwire Brothers, Inc.	35,000		35,000
Youngstown Sheet and Tube Company	3,383,200		3,383,200
GRAND TOTAL	83,699,890	352,500	84,052,390

TOTAL HOT-ROLLED PRODUCTS

Total Industry Capacity of Finished, Hot-Rolled Iron and Steel

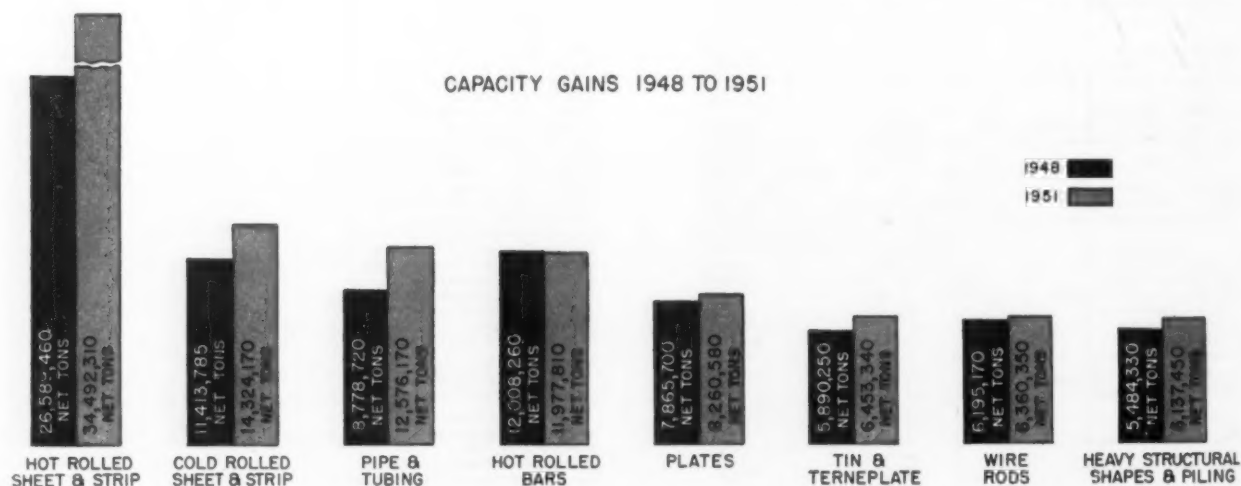
Products	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
Rails—60 lbs. or less per yard	323,400		323,400
—Over 60 lbs. per yard	2,383,600		2,383,600
Long joint or splice bars and tie plates	912,770		912,770
Structural shapes—Heavy	5,855,150		5,855,150
—Light	912,360		912,360
Steel piling (Rolled)	282,300		282,300
Plates—Sheared	6,858,650		6,858,650
—Universal	1,401,930		1,401,930
Sheets—Hot rolled	24,890,230		24,890,230
Strip—Hot rolled	4,907,550		4,907,550
Strip for cold reduced black plate and tin plate	4,694,530		4,694,530
Bars—Other than concrete reinforcement	11,935,310	42,500	11,977,810
—Concrete reinforcement—New billet steel	1,254,560		1,254,560
—" " " "—Re-rolled	403,500		403,500
Wire rods	6,360,350		6,360,350
Skelp	4,956,700	310,000	5,266,700
Blanks or pierced billets for seamless tubes	3,938,100		3,938,100
Wheels and axles (Rolled)	446,350		446,350
Ingot, blooms and billets for forging purposes	677,790		677,790
All other finished hot rolled	304,760		304,760
TOTAL	83,699,890	352,500	84,052,390
TOTAL STEEL INGOT CAPACITY	104,502,680		
PERCENT TO INGOT CAPACITY	80.1%		

HOT-ROLLED PRODUCTS BY STATES

Total Finished Hot-Rolled Products by States

Products	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
States:			
Alabama	3,633,900		3,633,900
California	2,402,020		2,402,020
Colorado	1,018,500		1,018,500
Connecticut	130,000		130,000
Delaware	300,000		300,000
Georgia	145,000		145,000
Illinois	6,549,240		6,549,240
Indiana	10,288,800	4,500	10,293,300
Kentucky	1,008,000		1,008,000
Maryland	4,889,940		4,889,940
Massachusetts	234,100		234,100
Michigan	4,547,300		4,547,300
Minnesota	247,300		247,300
Missouri	410,000		410,000
New Jersey	221,000		221,000
New York	4,172,030		4,172,030
Ohio	16,467,520	8,000	16,475,520
Oklahoma	43,200		43,200
Oregon	100,000		100,000
Pennsylvania	21,297,840	340,000	21,637,840
Rhode Island	122,200		122,200
Tennessee	90,000		90,000
Texas	698,000		698,000
Utah	1,595,000		1,595,000
Virginia	47,000		47,000
Washington	201,000		201,000
West Virginia	2,817,000		2,817,000
Wisconsin	24,000		24,000
GRAND TOTAL	83,699,890	352,500	84,052,390

CAPACITY GAINS 1948 TO 1951



U. S. Capacity: Sheets, strip, tinplate, terneplate, blackplate, bolts, nuts . . .

STEEL INDUSTRY

STRIP—COLD-ROLLED, GALVANIZED

Annual Capacity Listed by Companies, In Net Tons

	ANNUAL CAPACITY (N. T.)	
	Cold rolled strip	Galvanized strip
Companies:		
Acme Steel Company	435,000	117,000
Allegheny Ludlum Steel Corporation	128,000	
Wallingford Steel Company	60,000	
TOTAL	198,000	
Alloy Metal Wire Company, Inc.	400	
American Shim Steel Company	18,000	13,000
Atlantic Steel Company	36,000	
Blair Strip Steel Company	2,500	
Buffalo Bolt Company	24,000	
California Cold Rolled Steel Corporation	8,500	
Carpenter Steel Company	240	
Cleveland Cold Rolling Mills Company	50,000	12,000
Cold Metal Products Company	20,000	
Crucible Steel Company of America	221,000	
Detroit Steel Corporation	780	
Diaton & Sons, Inc., Henry	36,000	
Eico Steel Products Co.	23,000	
Elliott Brothers Steel Company	54,000	
Follansbee Steel Corporation	74,000	12,000
Greer Steel Company	36,000	
Griffin Manufacturing Company	5,000	
Hind Steel Company, Inc.	24,000	
Hofmann Industries Inc.	1,000	
Igoe Brothers Inc.	24,000	
Inland Steel Company	30,000	
Jones & Laughlin Steel Corporation	43,000	
Kaiser Steel Corporation	92,400	
McLouth Steel Corporation	6,000	
National-Standard Company		
National Steel Corporation:		
Great Lakes Steel Corporation	50,000	
Weirton Steel Company	175,000	70,000
TOTAL	225,000	70,000
Newman-Crosby Steel Corporation	25,000	
Republic Steel Corporation	175,000	
Rhode Island Steel Corporation	3,000	
Roebbing's Sons Company, John A.	28,000	10,000
Rome Strip Steel Company, Inc.	20,000	
Sharon Steel Corporation	108,000	45,000
Brainerd Steel Company	25,000	15,000
Detroit Tube & Steel Company	80,000	
TOTAL	213,000	60,000
Simonds Saw & Steel Company	200	
Stanley Works	126,000	
Superior Steel Corporation	80,000	
Thomas Steel Company	120,000	36,000
Thompson Wire Company	60,000	
United States Steel Corporation:		
American Steel and Wire Company	238,820	36,810
Universal-Cyclops Steel Corporation	15,000	
Wallace Barnes Company	12,000	
Washburn Wire Company	23,100	
Worcester Pressed Steel Company	7,500	
GRAND TOTAL	2,825,840	366,810

BOLTS, NUTS, RIVETS, WASHERS

Annual Capacity Listed by Companies, In Net Tons

Companies:	
Ames & Company, Inc., W.	7,000
Armco Steel Corporation:	
Sheffield Steel Corporation	36,000
Atlantic Steel Company	5,580
Bethlehem Steel Corporation:	
Bethlehem Steel Company	78,000
Bethlehem Pacific Coast Steel Corporation	32,000
TOTAL	110,000
Buffalo Bolt Company	55,200
Colorado Fuel and Iron Corporation	*
Falls Hollow Staybolt Company	600
Igoe Brothers, Inc.	700
Republic Steel Corporation	112,000
United States Steel Corporation:	
Tennessee Coal, Iron and Railroad Co.	21,600
GRAND TOTAL	348,680

* Included in capacity of track spikes.

SHEETS—COLD-ROLLED, GALVANIZED

Also Long Terne Sheets, Capacity by Companies

	ANNUAL CAPACITY (N. T.)		
	Cold rolled sheets	Galvanized sheets	Long terne sheets
Companies:			
Allegheny Ludlum Steel Corporation	15,000		
Armco Steel Corporation	1,096,000	359,000	48,000
Bethlehem Steel Corporation:			
Bethlehem Steel Company	1,440,000	228,000	
Continental Steel Corporation		110,000	
Crucible Steel Company of America	18,600		
Eastern Stainless Steel Corporation	18,000		
Empire Steel Corporation			16,000
Follansbee Steel Corporation	154,800		31,200
Ford Motor Company	485,000		
Granite City Steel Company	300,000	120,000	
Inland Steel Company	800,000	86,400	
Jones & Laughlin Steel Corporation	840,000		
National Steel Corporation:			
Great Lakes Steel Corporation	1,800,000		
Weirton Steel Company	750,000	220,000	30,000
TOTAL	2,550,000	220,000	30,000
Newport Steel Corporation		96,000	16,000
Parkersburg Steel Company		114,000	27,500
Reeves Steel and Manufacturing Company		42,000	
Republic Steel Corporation	1,170,000	440,000	
Sharon Steel Corporation:			
Niles Rolling Mill Company		51,600	15,600
Sheet Steel Mills, Inc.		55,000	
United States Steel Corporation:			
Columbia Steel Company	169,020	131,600	
Tennessee Coal, Iron and Railroad Co.		316,200	
United States Steel Company	1,355,910	367,660	65,800
TOTAL	1,524,930	815,460	65,800
Washington Steel Corporation	18,000		
Wheeling Steel Corporation	480,000	390,000	24,000
Whitney-Apollo Corporation		56,000	
Youngstown Sheet and Tube Company	588,000		
GRAND TOTAL	11,498,330	3,183,460	274,100

TINPLATE, TERNEPLATE, BLACKPLATE

Annual Capacity Listed by Companies and Process

	ANNUAL CAPACITY (N. T.)			
	Ordinary black plate	Chemically treated black plate	Hot dipped tin and terne plate	Electrolytic tin plate
Companies:				
Bethlehem Steel Corporation:				
Bethlehem Steel Company		154,000	648,000	540,000
Crown Cork & Seal Company, Inc.			32,400	144,000
Granite City Steel Company	12,000			75,000
Inland Steel Company			145,000	180,000
Jones & Laughlin Steel Corporation	77,000		109,200	193,200
National Steel Corporation:				
Weirton Steel Company	50,000		430,000	600,000
Republic Steel Corporation		20,000	160,000	140,000
United States Steel Corporation:				
Columbia Steel Company	9,160		162,450	101,410
Tennessee Coal, Iron and Railroad Co.		34,000	378,800	216,000
United States Steel Company	† 226,000		597,920	736,960
TOTAL	235,160	34,000	1,139,170	1,054,370
Wheeling Steel Corporation	150,000		315,000	110,000
Youngstown Sheet and Tube Company	30,000		222,000	216,000
GRAND TOTAL	454,160	208,000	3,200,770	3,252,570

* The combined capacity for hot dipped and electrolytic tin plate is limited to 960,000 tons.

† Includes capacity of chemically treated black plate.

Results of an Iron Age Survey of the air pollution control ordinances of 68 U. S. industrial communities are tabulated in Section 5. This section also contains exclusive data on metal powders, including shipments, compiled by The Iron Age. Data on major steelmaking raw materials—ore, pig iron, ferroalloys, brick, coke, etc., will be found in Section 3. Steel industry hours and wages are in Section 8.

STEEL INDUSTRY

Capacity: Shapes, plates, piling, rail and track supplies, wire rods, cold finished bars, misc. hot-rolled products

STRUCTURAL SHAPES, PLATES, AND PILING

Annual Capacity Listed By Companies, In Net Tons

	ANNUAL CAPACITY (N. T.)			
	Structural Shapes (Heavy)	Rolled Steel Piling	Sheared Plates	Universal
Companies:				
Alan Wood Steel Company.....			145,600	
Allegheny Ludlum Steel Corporation.....			6,000	
Armco Steel Corporation:				
Sheffield Steel Corporation.....	54,100		108,200	
Barium Steel Corporation:				
Central Iron and Steel Company.....			183,400	105,600
Phoenix Iron & Steel Company.....	259,000			
TOTAL.....	259,000		183,400	105,600
Bethlehem Steel Corporation:				
Bethlehem Steel Company.....	1,823,000	164,000	673,000	348,000
Bethlehem Pacific Coast Steel Corporation.....	98,000			12,000
TOTAL.....	1,921,000	164,000	673,000	360,000
Borg-Warner Corporation:			25,000	
Byers Company, A. M.....			30,000	70,000
Colorado Fuel and Iron Corporation:				
Claymont Steel Corporation.....	52,000		7,000	
TOTAL.....	52,000		307,000	
Crucible Steel Company of America:			42,000	12,000
Diaton & Sons, Inc., Henry.....			5,600	
Empire Steel Company.....				24,000
Granite City Steel Co.....			120,000	
Inland Steel Company.....	250,000	5,000	385,000	85,000
International Harvester Company.....	22,000		9,000	60,000
Jesop Steel Company.....				
Jones & Laughlin Steel Corporation.....	110,000		146,800	
Kaiser Steel Corporation.....	60,000		215,000	25,000
Lukens Steel Company.....			486,000	
National Steel Corporation:				
Weirton Steel Company.....	(a) 200,000			
Republic Steel Corporation.....			(b)	
Sharon Steel Corporation.....				60,000
Simonds Saw and Steel Company.....			400	
United States Steel Corporation:				
Columbia Steel Company.....	8,900			
Geneva Steel Company.....	352,000		328,000	
Inland Steel Company.....	180,000		400,000	18,000
Tennessee Coal, Iron and Railroad Co.....	2,370,150	113,300	2,708,550	570,330
United States Steel Company.....				
TOTAL.....	2,911,050	113,300	3,636,550	588,330
West Virginia Steel and Mfg. Co.....	5,000			
Universal-Cyclops Steel Corporation:			17,100	
Wheeling Steel Corporation.....			252,000	
Youngstown Sheet and Tube Company.....	11,000		72,000	12,000
GRAND TOTAL.....	5,855,150	282,300	6,858,650	1,401,930

(a) Includes steel piling and tie plates.

(b) Included in hot rolled sheet capacity.

RAILS AND TRACK SUPPLIES BY COMPANIES

Rails, Joint Bars, Splice Bars, Tie Plates, Track Spikes, Wheels, Axles

	ANNUAL CAPACITY (N. T.)				
	Rails		Joint or splice bars and tie plates	Track spikes	Wheels and axles (Rolled)
	60 lbs. or less per yard	Standard (over 60 lbs. per yard)			
Companies:					
Amec & Company, Inc. W.....				18,000	
Armco Steel Corporation:					
Sheffield Steel Corporation.....				24,000	54,000
TOTAL.....				24,000	54,000
Baldwin-Lima-Hamilton Corporation:					47,750
Bethlehem Steel Corporation:					
Bethlehem Steel Company.....	36,000	373,000	145,000	48,000	150,000
Bethlehem Pacific Coast Steel Corporation.....			12,000	6,000	
TOTAL.....	36,000	373,000	157,000	54,000	150,000
Colorado Fuel and Iron Corporation:					
Edgewater Steel Company.....	9,600	420,000	144,000	30,000	35,000
Inland Steel Company.....		135,000	50,000	24,000	
Jones & Laughlin Steel Corporation.....				36,000	
National Steel Corporation:					
Weirton Steel Company.....			(a)	6,000	
Poor & Company.....			12,000		
Republic Steel Corporation.....				35,000	
Sweet's Steel Company.....	57,000		(b)		
Tredegar Company.....			20,000	10,000	
United States Steel Corporation:					
Columbia Steel Company.....			73,870		
Tennessee Coal, Iron and Railroad Co.....	3,600	470,000	166,600	30,000	
United States Steel Company.....	132,200	986,600	279,300		159,600
TOTAL.....	135,800	1,456,600	519,770	30,000	159,600
West Virginia Steel and Manufacturing Co.....	85,000		10,000		
Youngstown Sheet and Tube Company:				28,800	46,950
GRAND TOTAL.....	323,400	2,383,600	912,770	295,800	446,350

(a) Included in capacity of heavy structural shapes.

(b) Included in capacity of hot rolled bars.

WIRE ROD CAPACITY Capacity By Companies, In Net Tons

Companies:	
American Chain & Cable Company, Inc.....	175,000
Armco Steel Corporation:	
Sheffield Steel Corporation.....	18,800
TOTAL.....	234,500
Atlantic Steel Company:	
TOTAL.....	53,000
Bethlehem Steel Corporation:	
Bethlehem Steel Company.....	731,000
Bethlehem Pacific Coast Steel Corporation.....	63,000
TOTAL.....	794,000
Buffalo Bolt Company:	
Colorado Fuel and Iron Corporation.....	24,500
Continental Steel Corporation.....	364,000
Copperweld Steel Company.....	155,000
Crucible Steel Company of America.....	55,000
Detroit Steel Corporation.....	14,800
Driver Company, Wilbur B.....	180,000
International Harvester Company.....	6,000
Jones & Laughlin Steel Corporation.....	2,500
Joslyn Manufacturing & Supply Co.....	284,000
Keynote Steel & Wire Company.....	2,800
Lacoste Steel Company.....	282,000
Northwestern Steel & Wire Company.....	99,000
Pittsburgh Steel Company.....	518,000
Republic Steel Corporation.....	310,000
Roebling's Sons Company (John A.).....	375,000
TOTAL.....	1,997,000
United States Steel Corporation:	
American Steel and Wire Company.....	1,997,000
Columbia Steel Company.....	219,230
Tennessee Coal, Iron and Railroad Co.....	169,000
TOTAL.....	2,385,230
Universal-Cyclops Steel Corporation:	
Washburn Wire Company.....	6,700
Wickwire Brothers, Inc.....	61,000
Youngstown Sheet and Tube Company.....	35,000
GRAND TOTAL.....	6,360,330

COLD FINISHED BARS Capacity By Companies, In Net Tons

Companies:	
Allegheny Ludlum Steel Corporation.....	22,500
Anchor Drawn Steel Company.....	1,850
Armco Steel Corporation.....	34,800
Bethlehem Steel Corporation.....	53,000
Bliss & Laughlin, Inc.....	354,000
Buffalo Bolt Company.....	3,200
Carpenter Steel Company.....	22,200
Columbia Steel & Shafting Company.....	136,000
Compressed Steel Shafting Company.....	20,000
Copperweld Steel Company.....	50,140
Crucible Steel Company of America.....	71,400
Cumberland Steel Company.....	40,000
Cuyahoga Steel & Wire Company.....	15,000
Firth Sterling Steel & Carbide Corporation.....	3,775
Fitzsimons Steel Company.....	50,000
Fort Howard Steel & Wire.....	12,000
International Harvester Company.....	30,000
Jones & Laughlin Steel Corporation.....	420,000
Joslyn Manufacturing & Supply Company.....	28,000
Keynote Drawn Steel Company.....	31,400
Kidd Drawn Steel Company.....	3,000
La Salle Steel Company.....	248,000
Latrobe Electric Steel Company.....	1,600
Medart Company.....	4,800
Moltrup Steel Products Company.....	72,000
Monarch Steel Company, Inc.....	40,000
Nelsen Steel & Wire Company.....	10,000
Pacific Tube Company.....	12,000
Pilgrim Drawn Steel Division.....	44,000
Pittsburgh Tool Steel Wire Company.....	6,500
Precision Drawn Steel Company.....	56,000
Republic Steel Corporation.....	400,000
Rotary Electric Steel Company.....	55,000
Sierra-Drawn Steel Company.....	21,600
Superior Drawn Steel Company.....	36,000
Timken Roller Bearing Company.....	32,000
United States Steel Corporation:	
American Steel and Wire Company.....	56,030
Universal-Cyclops Steel Company.....	7,350
Western Automatic Machine Screw Company.....	52,500
Wycroft Steel Company.....	350,150
Youngstown Sheet and Tube Company.....	60,000
TOTAL.....	2,908,395

* Includes capacity of drawn wire.

MISC. H-R PRODUCTS Capacity By Companies, In Net Tons

Companies:	
American Locomotive Company.....	123,000
Baldwin-Lima-Hamilton Corporation.....	44,000
Colorado Fuel and Iron Corporation.....	30,800
Edgewater Steel Company.....	46,950
Midvale Company.....	60,000
TOTAL.....	304,750

Capacity: Hot-rolled bars; strip for tinplate; tube blanks, billets; forging ingots and billets; all by companies.

STEEL INDUSTRY

HOT-ROLLED BARS, BAR SIZE SHAPES

Capacity in Net Tons by Companies, Including Concrete Reinforcing Bars

Companies:	ANNUAL CAPACITY (N. T.)			
	Other than Concrete Reinforcement	Concrete Reinforcement		Bar Size Shapes
		New Billet	Re-rolled	
Allegheny Ludlum Steel Corporation	34,800			
American Svedeo Iron Corporation	12,000			
Ames & Company, W.	33,900			(a)
Armco Steel Corporation	19,800			
Sheffield Steel Corporation	114,000	151,700	25,000	77,700
TOTAL	133,000	151,700	25,000	77,700
Atlantic Steel Company	20,000	20,000		18,000
Bethlehem Steel Corporation:				
Bethlehem Steel Company	1,462,000	300,000		168,000
Bethlehem Pacific Coast Steel Corporation	214,000	161,000		62,000
TOTAL	1,676,000	461,000		230,000
Boardi Steel Corporation	40,000		10,000	(a)
Borg-Warner Corporation	92,000	25,000		(a)
Brachburn Alloy Steel Corporation	3,200			
Buffalo Bolt Company	46,500			
Buffalo Steel Company	55,000			33,000
Byers Company, A. M.	50,000			
Carpenter Steel Company	24,800			
Colorado Fuel and Iron Corporation	74,000	40,000		20,000
Columbia Tool Steel Company	1,800			
Conners Steel Company	7,400	10,000		
Copperweld Steel Company	320,800		55,000	
Crucible Steel Company of America	447,100			
Daston & Sons, Inc., Henry	22,400			
Falls Hollow Staybolt Company	8,000			
Firth Sterling Steel and Carbide Corporation	11,550			
Ford Motor Company	145,000			
Heller Brothers Company	18,500			
Highland Iron & Steel, Inc.	45,000			
Inland Steel Company	345,000	40,000	20,000	50,000
International Harvester Company	503,800			(a)
Jersey Shore Steel Company	30,000			(a)
Jenop Steel Company	6,000			
Jones & Laughlin Steel Corporation	485,000	2,000	10,000	30,000
Joslyn Manufacturing & Supply Company	15,000			1,000
Judson Steel Corporation	14,000	40,000		
Kaiser Steel Corporation	48,000			(a)
Knoxville Iron Company	51,500	23,100		13,900
Laclede Steel Company	24,000	6,000	107,000	24,000
Larrobe Electric Steel Company	5,500			
Lockhart Iron and Steel Company	60,000			(a)
Missouri Rolling Mill Corporation	16,500		53,500	
National Steel Corporation:				
Great Lakes Steel Corporation	60,000		12,000	3,000
Northern Steel, Inc.	17,000		8,000	(a)
Northwest Steel Rolling Mills, Inc.	100,000			
Oregon Steel Mills	83,000	30,000		40,000
Pacific States Steel Corporation	15,000			
Phoenix Manufacturing Company	54,000		36,000	
Pollak Steel Corporation	(b) 3,156,000	(a)		
Rotary Electric Steel Company	180,000			
Simmons Company	33,900		3,000	(a)
Simonds Saw and Steel Company	6,000			
Sweet's Steel Company	(c) 47,000		(a)	
Texas Steel Company	26,000		42,000	
Timken Roller Bearing Company	93,000			
Tredegar Company	22,000	5,000		
United States Steel Corporation:				
American Steel and Wire Company	102,500			
Columbia Steel Company	68,940	126,260		16,760
Tennessee Coal, Iron and Railroad Co.	158,460	67,400		(a)
United States Steel Company	2,452,200	168,100		331,000
TOTAL	2,782,040	361,760		347,760
Universal-Cyclops Steel Corporation	15,400			
Vanadium-Alloys Steel Company	6,000			
Colonial Steel Company	6,720			
TOTAL	12,720			
Vulcan Crucible Steel Company	3,000			
West Virginia Steel and Manufacturing Co.	10,000	10,000	20,000	
Youngstown Sheet and Tube Company	343,000	6,000	17,000	
GRAND TOTAL	11,977,810	1,254,560	403,500	912,360

(a) Included in capacity of bars—other than concrete reinforcement.
(b) Includes concrete reinforcement bars and tube rounds.
(c) Includes splice bars, tie plates and re-rolled concrete reinforcement bars.

STRIP FOR TERNE, TINPLATE

Capacity by Companies in Net Tons

Companies:	
Bethlehem Steel Corporation:	
Bethlehem Steel Company	1,000,000
Granite City Steel Company	370,000
Inland Steel Company	245,000
Jones & Laughlin Steel Corporation	440,000
National Steel Corporation:	
Weirton Steel Company	(a)
Republic Steel Corporation	250,000
United States Steel Corporation:	
Tennessee Coal, Iron and Railroad Co.	624,000
United States Steel Company	1,435,530
TOTAL	2,059,530
Youngstown Sheet and Tube Company	330,000
GRAND TOTAL	4,694,530

(a) Included in capacity of hot rolled sheets.

BLANKS, BILLETS FOR TUBES

Capacity by Companies in Net Tons

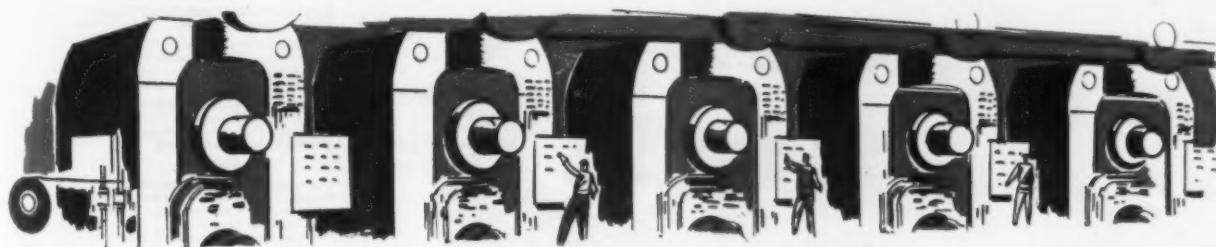
Companies:	
Babcock & Wilcox Tube Company	39,600
Crucible Steel Company of America	98,000
Inland Steel Company	5,000
Jones & Laughlin Steel Corporation	420,000
Pittsburgh Steel Company	380,000
Republic Steel Corporation	(a)
Timken Roller Bearing Company	216,500
United States Steel Corporation:	
National Tube Company	2,250,800
United States Steel Company	26,200
TOTAL	2,377,000
Youngstown Sheet and Tube Company	540,000
GRAND TOTAL	3,938,100

(a) Included in capacity of bars—other than concrete reinforcement.

FORGING INGOTS, BILLETS

Ingots, Billets, Blooms, by Companies

Companies:	
Alan Wood Steel Company	37,500
Allegheny Ludlum Steel Corporation	3,850
Armco Steel Corporation	2,140
Sheffield Steel Corporation	24,800
TOTAL	26,940
Bethlehem Steel Corporation:	
Bethlehem Steel Company	153,000
Colorado Fuel and Iron Corporation	500
Crucible Steel Company of America	22,000
Harriburg Steel Corporation	75,000
Inland Steel Company	20,000
International Harvester Company	36,000
Timken Roller Bearing Company	20,000
United States Steel Corporation:	
Tennessee Coal, Iron and Railroad Co.	11,800
United States Steel Company	262,200
TOTAL	274,000
Youngstown Sheet and Tube Company	9,000
GRAND TOTAL	677,790



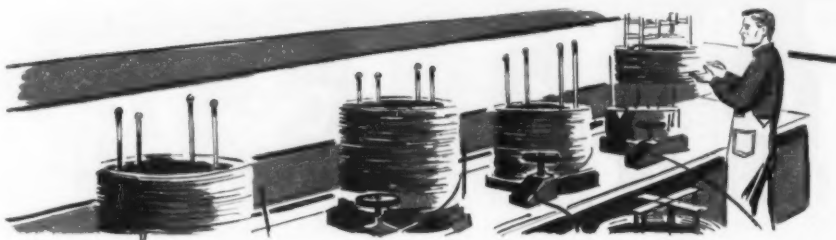
STEEL INDUSTRY

U. S. Capacity: Hot-rolled sheets and strip, wire products; all by companies

CAPACITY OF WIRE AND WIRE PRODUCTS

Plain, Galvanized, Barbed Wire, Fence, Bale Ties, Nails and Staples

Companies:	ANNUAL CAPACITY (N. T.)					
	Plain wire	Galvanized wire	Nails and staples	Barbed wire	Woven mesh	Bale ties
Alloy Metal Wire Company.....	3,500					
American Chain & Cable Co. Inc.....	95,000	25,000		600		
Angell Nail & Chaplet Company.....	22,000		18,000			
Armco Steel Corporation.....	18,000					
Sheffield Steel Corporation.....	238,000	68,000	63,100	24,000	30,500	10,000
TOTAL.....	256,000	68,000	63,100	24,000	30,500	10,000
Atlantic Steel Company.....	87,500	31,000	43,000	13,000	35,000	6,000
Atlantic Wire Company.....	26,000	3,500				
Bethlehem Steel Corporation:						
Bethlehem Steel Company.....	563,000	132,000	85,000	22,000	18,000	15,000
Bethlehem Pacific Coast Steel Corp.....	42,000					
TOTAL.....	605,000	132,000	85,000	22,000	18,000	15,000
Cedarburg Wire, Wire Nail & Screw Co.....			1,350			
Buffalo Bolt Company.....	24,000					
Chicago Steel & Wire Company.....	23,000	2,500				
Colorado Fuel & Iron Corporation.....	286,000	84,000	54,000	32,400	18,000	21,700
California Wire Cloth Corp.....	43,200			3,700		2,700
TOTAL.....	329,200	84,000	54,000	36,100	18,000	24,400
Continental Steel Corporation.....	155,000	60,000	51,000	31,000	54,000	15,000
Copperweld Steel Company.....	55,000			175		
Crucible Steel Company of America.....	12,000					
Cuyahoga Steel & Wire Company.....	18,000					
Davis Wire & Cable Corp., K. H.....	12,000	1,200				600
Detroit Steel Corporation.....	144,000	12,000	21,600			
Driscoll Wire Company.....	12,000	600				
Driver Company, Wilbur B.....	2,000					
Ford Motor Company.....	52,000					
Igoe Brothers, Inc.....	30,000		2,500			
Jones & Laughlin Steel Corporation.....	250,000	68,400	66,000	36,000	14,400	
Joelyn Manufacturing & Supply Company.....	2,000					
Keystone Steel & Wire Company.....	261,000	145,000	49,000	39,000	237,000	
Mid-States Steel & Wire Co.....	100,000	50,000	12,500	18,000	29,500	6,000
TOTAL.....	361,000	195,000	61,500	57,000	266,500	6,000
Laclede Steel Company.....	90,000	10,000				
Macwylite Company.....	12,000	1,000				
Madison Wire Company Inc.....	8,700	2,000				
National-Standard Company.....	44,200	7,300				
New England High Carbon Wire Company.....	11,000					
Nichols Wire & Aluminum Co.....	65,700	13,500	15,450	16,500	15,000	11,100
Northwestern Steel & Wire Co.....	252,000	170,000	40,800	26,400	38,000	32,400
Pittsburgh Steel Company.....	324,000	100,000	45,500	20,000	125,000	
Johnson Steel & Wire Co.....	38,000	1,000				
TOTAL.....	362,000	101,000	45,500	20,000	125,000	
Prentiss & Company, Geo. W.....	5,000					
Republic Steel Corporation.....	348,000	105,000	113,000	35,000	41,000	13,000
Roebing's Sons Company, John A.....	86,400	24,000				
Seneca Wire & Mfg. Company.....	15,000	1,000				
Sherman Steel & Wire Co.....	1,500					
Spencer Wire Corporation.....	24,000					
Thompson Wire Company.....	12,000					
Union Wire Rope Corporation.....	35,000	5,000				
United States Steel Corporation:						
American Steel & Wire Co.....	1,690,520	525,580	349,960	182,690	221,220	24,790
Columbia Steel Company.....	123,950	27,230	53,870	4,190	7,660	3,450
Tennessee Coal, Iron and Railroad Company.....	170,600	75,100	87,700	28,000	81,700	7,400
TOTAL.....	1,985,070	627,910	491,530	214,880	310,580	35,640
Universal-Cyclops Steel Corp.....	6,000					
Washburn Wire Company.....	15,000					
Webb Wire Works.....	500					
Western Auto. Machine Screw Co.....	12,000					
Wickwire Brothers, Inc.....	35,000	7,500	7,000	300		
Wilson Steel & Wire Company.....	40,000	10,000	20,000			4,200
Wright Steel & Wire Co., G. F.....	15,000	3,700				
Youngstown Sheet & Tube Co.....	72,000	15,000				
GRAND TOTAL.....	6,129,370	1,787,110	1,200,330	532,955	965,980	173,340



HOT-ROLLED STRIP

Capacity by Companies In Net Tons

Companies:	
Acme Steel Company.....	545,000
Alan Wood Steel Company.....	218,000
Allegheny Ludlum Steel Corporation.....	150,000
Atlantic Steel Company.....	32,000
Boardi Steel Corporation.....	30,000
Borg-Warner Corporation.....	3,000
Buffalo Bolt Company.....	600
Byers Company, A. M.....	60,000
Colorado Fuel and Iron Corporation.....	600
Connors Steel Company.....	21,800
Inland Steel Company.....	15,000
International Harvester Company.....	35,000
Kaiser Steel Corporation.....	67,000
Knoxville Iron Company.....	1,500
Laclede Steel Company.....	78,000
McLouth Steel Corporation.....	80,400
National Steel Corporation:	
Great Lakes Steel Corporation.....	375,000
Newport Steel Corporation.....	300,000
Republic Steel Corporation.....	474,000
Roebing's Sons Company (John A.).....	12,000
Sharon Steel Corporation.....	585,000
Simonds Saw and Steel Company.....	700
Stanley Works.....	130,000
Superior Steel Corporation.....	115,000
United States Steel Corporation:	
American Steel and Wire Company.....	82,120
Columbia Steel Company.....	16,020
Geneva Steel Company.....	715,000
Tennessee Coal, Iron and Railroad Co.....	58,100
United States Steel Company.....	638,630
TOTAL.....	1,509,870
Washburn Wire Company.....	61,200
Youngstown Sheet and Tube Company.....	12,000
GRAND TOTAL.....	4,907,550

HOT-ROLLED SHEETS

Capacity by Companies In Net Tons

Companies:	
Alan Wood Steel Company.....	20,000
Allegheny Ludlum Steel Corporation.....	120,000
Armco Steel Corporation.....	1,984,000
Sheffield Steel Corporation.....	9,100
TOTAL.....	1,993,100
Bethlehem Steel Corporation:	
Bethlehem Steel Company.....	3,792,000
Borg-Warner Corporation.....	125,000
Continental Steel Corporation.....	130,000
Crucible Steel Company of America.....	42,200
Dixton & Sons Inc., Henry.....	10,600
Eastern Stainless Steel Corporation.....	18,000
Empire Steel Company.....	120,000
Ford Motor Company.....	975,000
Inland Steel Company.....	1,400,000
International Harvester Company.....	18,000
Jessop Steel Company.....	5,000
Jones & Laughlin Steel Corporation.....	1,534,400
Kaiser Steel Corporation.....	43,000
McLouth Steel Corporation.....	471,900
Mahoning Valley Steel Company.....	120,000
National Steel Corporation:	
Great Lakes Steel Corporation.....	2,260,000
Worlton Steel Company.....	(a) 2,075,000
TOTAL.....	4,335,000
Newport Steel Corporation.....	180,000
Parkersburg Steel Company.....	36,000
Superior Sheet Steel Division.....	140,000
TOTAL.....	176,000
Reeves Steel and Manufacturing Company.....	75,000
Republic Steel Corporation.....	(b) 1,737,000
Sharon Steel Corporation:	
Niles Rolling Mill Company.....	150,000
Sheet Steel Mills, Inc.....	55,000
Simonds Saw and Steel Company.....	4,000
United States Steel Corporation:	
Columbia Steel Company.....	317,040
Tennessee Coal, Iron and Railroad Co.....	618,000
United States Steel Company.....	4,204,770
TOTAL.....	5,149,810
Universal-Cyclops Steel Corporation.....	13,100
Vanadium-Alloys Steel Company:	
Colonial Steel Company.....	1,120
Wheeling Steel Corporation.....	903,000
Whitney Apollo Corporation (The).....	132,000
Youngstown Sheet and Tube Company.....	1,041,000
GRAND TOTAL.....	24,890,230

(a) Includes hot rolled strip.
(b) Includes plates.

Capacity: Pipes and tubes, and skelp . . .

STEEL INDUSTRY

PIPE AND TUBE CAPACITY BY COMPANIES

Butt, Lap, Electric, Spiral and Gas Weld; Seamless, Pressure, Mechanical Tubing

Companies:	ANNUAL CAPACITY (N. T.)							
	Buttweld	Lapweld	Seamless	Electric weld	Spiral weld	Gasweld	Galvanized	Premium tubing
Agaloy Tubing Company			800	200				1,000
Allegheny Ladium Steel Corp.			1,800					
American Metal Products, Inc.				30,000				30,000
American Pipe & Steel Corp.						13,000		
Armaco Steel Corporation				24,000	63,000			24,000
Babcock & Wilcox Tube Co.			143,000	39,400				67,200
Basalt Rock Company				358,000				115,200
Bethlehem Steel Corporation	294,000	84,000					140,000	
Bundy Tubing Company				37,200				24,000
Byers Company, A. M.	47,000	90,000					84,000	13,200
Central Steel Tube Co.				4,500				
Colorado Fuel & Iron Corp.				180,000				
Claymont Steel Corp.								
Columbia Steel & Shafting Co.			15,000					
Electroweld Steel Corporation				7,000				2,000
Formed Tubes, Inc.				12,000				12,000
Fretz-Moon Tube Co., Inc.	60,000						30,000	
Globe Steel Tubes Company			72,000	1,800				24,000
Hofmann Industries, Inc.				600				600
Ivins Steel Tube Works, Inc.			1,300					
Jones & Laughlin Steel Corp.	190,000	120,000	420,000	45,000			84,000	55,000
Kaiser Steel Corp.	135,000			208,000			80,000	
Kane Boiler Works, Inc. E.				18,000				
Laclede Steel Company	60,000			24,000		5,000	8,500	30,000
Mark & Company, Clayton				34,000				24,000
Master Tank & Welding, Ltd.				100,000				
Mercer Tube & Mfg. Company	100,000						70,000	
Michigan Seamless Tube Co.			19,000					19,000
National Supply Company	222,000	45,000	336,000	6,000			93,000	10,000
Naylor Pipe Company				18,000				
Newport Steel Corporation				90,000				
Nirok Tube Company				200,000				80,000
Ohio Seamless Tube Company			33,600	8,400				42,000
Pacific Tube Company			7,500	10,000				4,000
Pittsburgh Tube Company	45,000		360,000				72,000	60,000
Republic Steel Corporation	250,000			767,000			120,000	45,000
Service Steel Company	2,000		1,500					84,000
Sharon Steel Corporation:								
Brainard Steel Company				64,800				
Sharon Tube Company	9,000							
Shenango Tube Company				16,000				16,000
Smith Corporation, A. O.				620,000				
Smith Corp. of Texas, A. O.				480,000				
Simmons Company	3,100							
South Chester Tube Company		108,000						
Southeastern Metals Co., Inc.				15,000				15,000
Southern Pipe & Casing Company				34,000				
Standard Tube Company				60,000				45,000
Superior Tube Company			1,500					
Taylor Forge & Pipe Works				12,000	72,000			
Timken Roller Bearing Company			210,000					210,000
Toledo Steel Tube Company				15,000				15,000
Trent Tube Company				2,000				
Tube Reducing Corporation			30,000					30,000
United States Steel Corporation:								
Consolidated Western Steel Corp.				1,190,500				
National Tube Company	503,000		1,845,000	141,000			179,400	105,900
TOTAL	503,000	1,845,000	1,331,500	179,400	105,900	214,200	179,400	105,900
Vacuum Melt, Inc.			900					
Wheatland Tube Company	121,470			8,300			83,000	
Wheeling Steel Corporation	300,000						120,000	
Youngstown Sheet & Tube Co.	528,000		462,000	354,000			252,000	12,000
TOTAL	2,869,570	447,000	3,960,900	5,127,700	153,000	18,000	1,378,800	360,100

SKELP CAPACITY BY COMPANIES

Iron and Steel Skelp Capacity by Companies In Net Tons

Companies:	ANNUAL CAPACITY (N. T.)		
	Steel	Iron	Total
Armco Steel Corporation:			
Sheffield Steel Corporation	214,000		214,000
Bethlehem Steel Corporation:			
Bethlehem Steel Company	430,000		430,000
Borg-Warner Corporation	10,000		10,000
Byers Company, A. M.		310,000	310,000
Jones & Laughlin Steel Corporation	440,000		440,000
Kaiser Steel Corporation	436,000		436,000
Laclede Steel Company	99,500		99,500
Republic Steel Corporation	1,163,000		1,163,000
United States Steel Corporation:			
National Tube Company	509,000		509,000
United States Steel Company	356,200		356,200
TOTAL	865,200	310,000	865,200
Wheeling Steel Corporation	411,000		411,000
Youngstown Sheet and Tube Company	888,000		888,000
GRAND TOTAL	4,956,700	310,000	5,266,700

Steel Company Names Changed or Discontinued Since 1948

Baldwin Locomotive Works — Name changed in 1950 to Baldwin-Lima-Hamilton Corp.

Barium Steel & Forge, Inc.—Name changed in 1950 to Industrial Forge & Steel, Inc.

Carnegie-Illinois Steel Corp. — Subsidiary of United States Steel Corp. Merged into United States Steel Co., January, 1951.

Detroit Tube and Steel Co.—Subsidiary of Sharon Steel Corp. Operated as separate company until 1949. Now operated as division of Sharon Steel Corp.

Erie Forge & Steel Co.—Subsidiary Erie Forge Co. Operated as separate company until July, 1950, when it was dissolved. Property since operated as part of Erie Forge Co.

Ewald Iron Co.—Plant abandoned in 1950.

International Detrola Corp.—Name changed in March, 1949, to Newport Steel Corp.

Jackson Tube Co.—Acquired in August, 1948, by Armco Steel Corp.

Janson Steel & Iron Co. — Plant abandoned in 1948.

Kaiser Company, Inc. (Iron and Steel Div.)—Name of this division changed in August, 1949, to Kaiser Steel Corp.

Missouri-Illinois Furnaces, Inc.—Acquired in February, 1951, by Granite City Steel Co.

Phoenix-Apollo Steel Co.—Plant at Phoenixville, Pa., acquired by Central Iron and Steel Co., August, 1949, since operated by Phoenix Iron & Steel Co., a subsidiary. Plant at Apollo, Pa., acquired by Whitney-Apollo Corp., November, 1949.

Pine Iron Works Co.—Plant abandoned in 1950.

Plymouth Tube Co.—Plant abandoned in 1949.

Portsmouth Steel Corp.—Acquired January, 1950, by Detroit Steel Corp.

Richmond Rolling Mills, Inc.—Plant abandoned in 1949.

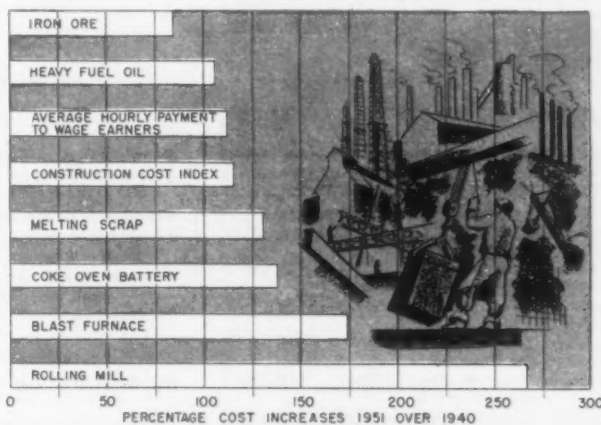
Titanium Alloy Mfg. Co.—Since Oct., 1948, a division of National Lead Co.

Trent Tube Manufacturing Co.—Acquired September, 1948, by Crucible Steel Co. of America. Operated as separate subsidiary under name of Trent Tube Co.

Ulster Iron Works—Plant abandoned in 1950.

Worth Steel Co.—Acquired February, 1951, by Colorado Fuel and Iron Corp. Operated as separate subsidiary under name of Claymont Steel Corp.

COST INCREASES IN STEEL LABOR-RAW MATERIALS & EQUIPMENT 1940-1951



STEEL INDUSTRY

Canadian Steel Capacity: Total finished hot-rolled, by products and by companies
... Coke, blast furnace, steel capacity

CANADA—TOTAL FINISHED HOT-ROLLED STEEL PRODUCTS

Products:	
Rails—60 lbs. or less per yard	5,600
"—Over 60 lbs. per yard	451,300
Long joint or splice bars and tie plates	80,700
Structural shapes—Heavy	79,700
"—Light	137,100
Steel piling (Rolled)	16,000
Plates—Sheared	193,800
Plates—Universal	1,800
Sheets—Hot rolled	333,000
Skelp	58,000
Strip for cold reduced black plate and tin plate	412,000
Bars—Other than concrete reinforcement	790,000
"—Concrete reinforcement—New billet	72,000
"—" "—Re-rolled	31,000
Wire rods	399,000
Ingot, blooms and billets for forging purposes	158,500
All other finished hot rolled	317,500
TOTAL	3,416,800

Companies:	
Algoma Steel Corporation, Limited	755,700
Atlantic Industries Limited	22,000
Atlas Steels, Limited	206,000
Burlington Steel Company, Ltd.	44,500
Canadian Tube & Steel Products, Limited	172,000
Dominion Foundries and Steel, Limited	340,000
Dominion Steel & Coal Corporation, Ltd.	503,300
Manitoba Rolling Mill Company, Limited	63,300
Steel Company of Canada, Limited	1,376,000
Vancouver Rolling Mills, Ltd.	35,000
TOTAL	3,416,800

Rails—60 lbs. or less per yard:	
Algoma Steel Corporation, Limited	5,600
Rails—Over 60 lbs. per yard:	
Algoma Steel Corporation, Limited	171,300
Dominion Steel & Coal Corporation, Ltd.	280,000
TOTAL	451,300

Long Joint or Splice Bars and Tie Plates:	
Algoma Steel Corporation, Limited	13,500
Dominion Steel & Coal Corporation, Ltd.	25,200
Steel Company of Canada, Limited	42,000
TOTAL	80,700

Structural Shapes—Heavy:	
Algoma Steel Corporation, Limited	50,500
Atlantic Industries Limited	12,000
Manitoba Rolling Mill Company, Limited	6,300
Steel Company of Canada, Limited	11,000
TOTAL	79,700

Structural Shapes—Light:	
Algoma Steel Corporation, Limited	103,000
Manitoba Rolling Mill Company, Limited	6,100
Steel Company of Canada, Limited	18,000
TOTAL	127,100

Steel Piling (Rolled):	
Algoma Steel Corporation, Limited	16,000

Plates (Sheared and Universal):	
Algoma Steel Corporation, Limited	3,800
Dominion Foundries and Steel, Limited	90,000
Manitoba Rolling Mill Company, Limited	1,100
Steel Company of Canada, Limited	100,500
TOTAL	195,400

Sheets—Hot Rolled:	
Atlas Steels, Limited	6,000
Steel Company of Canada, Limited	327,000
TOTAL	333,000

Skelp:	
Steel Company of Canada, Limited	58,000

Strip for Cold Reduced Black Plate and Tin Plate:	
Dominion Foundries and Steel, Limited	250,000
Steel Company of Canada, Limited	162,000
TOTAL	412,000

Long Joint or Splice Bars and Tie Plates:	
Algoma Steel Corporation, Limited	13,500
Dominion Steel & Coal Corporation, Ltd.	25,200
Steel Company of Canada, Limited	42,000
TOTAL	80,700

Structural Shapes—Heavy:	
Algoma Steel Corporation, Limited	50,500
Atlantic Industries Limited	12,000
Manitoba Rolling Mill Company, Limited	6,300
Steel Company of Canada, Limited	11,000
TOTAL	79,700

Structural Shapes—Light:	
Algoma Steel Corporation, Limited	103,000
Manitoba Rolling Mill Company, Limited	6,100
Steel Company of Canada, Limited	18,000
TOTAL	127,100

Steel Piling (Rolled):	
Algoma Steel Corporation, Limited	16,000

Plates (Sheared and Universal):	
Algoma Steel Corporation, Limited	3,800
Dominion Foundries and Steel, Limited	90,000
Manitoba Rolling Mill Company, Limited	1,100
Steel Company of Canada, Limited	100,500
TOTAL	195,400

Sheets—Hot Rolled:	
Atlas Steels, Limited	6,000
Steel Company of Canada, Limited	327,000
TOTAL	333,000

Skelp:	
Steel Company of Canada, Limited	58,000

Strip for Cold Reduced Black Plate and Tin Plate:	
Dominion Foundries and Steel, Limited	250,000
Steel Company of Canada, Limited	162,000
TOTAL	412,000

COKE CAPACITY OF CANADA

	OPEN HEARTH		BESSEMER		ELECTRIC		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Kinds:							
Open hearth—Basic	46	3,305,000					3,305,000
Bessemer			(a)1				
Electric					20	704,500	704,500
TOTAL	46	3,305,000	1		20	704,500	4,009,500
Steel for castings included above		35,000				40,000	75,000

Companies:							
Algoma Steel Corporation, Ltd.	12	1,000,000	(a)1				1,000,000
Atlas Steels, Ltd.				6	200,000		200,000
Burlington Steel Company, Ltd.				1	15,000		15,000
Canadian Car & Foundry Company, Ltd.	3	35,000			(b)		35,000
Canadian Tube & Steel Products, Ltd.				3	100,000		100,000
Dominion Foundries and Steel Ltd.	4	350,000			5	250,000	600,000
Dominion Steel & Coal Corp., Ltd.	10	685,000				28,000	713,000
Manitoba Rolling Mill Co., Ltd.	4	80,000			1	20,000	100,000
Steel Company of Canada, Ltd.	13	1,155,000			1	91,500	1,246,500
TOTAL	46	3,305,000	(a)1		20	704,500	4,009,500

(a) Included under "Pig Iron."

(a) Used in melting charge for open hearth furnaces.
(b) Included in capacity shown for open hearth furnaces.

STEEL CAPACITY OF CANADA

	No. of ovens	Annual capacity (N. T.)
Algoma Steel Corporation, Limited	244	1,230,000
Dominion Foundries and Steel, Limited	35	225,000
Dominion Steel & Coal Corporation, Ltd.	173	431,400
Steel Company of Canada, Limited	141	850,000
TOTAL	593	2,736,400

BLAST FURNACES OF CANADA

	PIG IRON		FERROALLOYS		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Algoma Steel Corporation, Limited	5	1,035,000			1,035,000
Canadian Furnace Co., Limited	3	215,500	(a)	7,500	223,000
Dominion Foundries and Steel, Limited	1	275,000			275,000
Dominion Steel & Coal Corporation, Ltd.	3	594,950			594,950
Steel Company of Canada, Limited	3	756,000			756,000
TOTAL	14	2,876,450	(a)	7,500	2,883,950

(a) Included under "Pig Iron."

CANADIAN STEEL COMPANIES

Algoma Steel Corp., Ltd., Sault Ste. Marie, Ontario.
Atlantic Industries Ltd., Amherst, N. S.
Atlas Steels, Ltd., Welland, Ontario.
Burlington Steel Co., Ltd., 319 Sherman Ave., North, Hamilton, Ontario.
Canadian Car & Foundry Co., Ltd., 621 West Craig St., Montreal 3, Quebec.
Canadian Furnace Co., Ltd., 503 Queen St., East, Sault Ste. Marie, Ontario.
Canadian Steel Corp., Ltd., 1219 Walker Road, Walkerville, Ontario.
Canadian Tube & Steel Products, Ltd., 5765 Hamilton St., Montreal, P. Q.
Dominion Foundries and Steel, Ltd., Depew St., Hamilton, Ontario

Dominion Steel & Coal Corp., Ltd., Sydney, N. S.
Electro Metallurgical Co. of Canada, Ltd., Welland, Ontario.
Exolon Co., Tonawanda, N. Y.
Frost Steel & Wire Co., Ltd., 250 Lottridge St., Hamilton, Ontario.
Graham Nail & Wire Products, Ltd., 35 Fraser Ave., Toronto 1, Ontario.
Laidlaw Bale Tie & Wire Co., Ltd., Birmingham St., Hamilton, Ontario.
Lionite Abrasives, Ltd., Niagara Falls, Ontario.
Manitoba Rolling Mill Co., Ltd., 845 Logan Ave. W., Winnipeg, Manitoba.
Morrison Steel & Wire Co., Ltd., Granville Island, Vancouver, B. C.

Page-Hersey Tubes, Ltd., 100 Church St., Toronto 1, Ontario.
Pender & Co., Ltd., 300-321 Charlotte St., St. John, N. B.
St. Lawrence Alloys & Metals, Ltd., Beauharnois, Quebec.
Shawinigan Chemicals, Ltd., P. O. Box 6072, Montreal, Quebec.
Simonds Canada Abrasive Co., Ltd., Arvida, Quebec.
Stanley Steel Co., Ltd., Hamilton, Ontario.
Steel Company of Canada, Ltd., Hamilton, Ontario.
Trenton Steel Works, Ltd., Main St., Trenton, N. S.
Union Drawn Steel Co., Ltd., Hamilton, Ontario.
Vancouver Rolling Mills, Ltd., Vancouver, B. C.

U. S. steel company names and addresses

STEEL INDUSTRY

Acme Steel Co.
2840 Archer Ave., Chicago 8, Ill.

Agaloy Tubing Co.
905 Wheel St., Springfield, Ohio

Alan Wood Steel Co.
Conshohocken, Pa.

Allegheny Ludlum Steel Corp.
2020 Oliver Bldg., Pittsburgh 22, Pa.

Alloy Metal Wire Co., Inc.
13th & Penn. Ave., Prospect Park, Pa.

American Chain & Cable Co., Inc.
230 Park Ave., New York 17, N. Y.

American Locomotive Co.
30 Church St., New York, N. Y.

American Metal Products Co.
5959 Linsdale Ave., Detroit 4, Mich.

American Pipe & Steel Corp.
Alhambra, Calif.

American Shim Steel Co.
Second Ave. & 6th St., New Kensington, Pa.

American Steel and Wire Co. of N. J.
Rockefeller Bldg., Cleveland 13, Ohio

American Swedo Iron Corp.
400 Railroad St., Danville, Pa.

Ames & Co., Inc., W.
417 Communipaw Ave., Jersey City 4, N. J.

Anaconda Copper Mining Co.
25 Broadway, New York 4, N. Y.

Anchor Drawn Steel Co.
Latrobe, Pa.

Angell Nail & Chaplet Co. (The)
4580 E. 71st St., Cleveland 5, Ohio

Armco Steel Corp.
703 Curtis St., Middletown, Ohio

Atlantic Steel Co.
P. O. Box 1714, Atlanta 1, Ga.

Atlantic Wire Co.
1 Church St., Branford, Conn.

Babcock & Wilcox Tube Co.
Beaver Falls, Pa.

Baldwin-Lima-Hamilton Corp. (Standard Steel Works Div.)
Burnham, Milford County, Pa.

Barium Steel Corp.
25 Broad St., New York, N. Y.

Basalt Rock Co. (Steel Products Div.)
8th & River Sts., Napa, Calif.

Bethlehem Steel Corp.
25 Broadway, New York 4, N. Y.

Bethlehem Steel Co.
Bethlehem, Pa.

Bethlehem Pacific Coast Steel Corp.
San Francisco 19, Calif.

Blair Strip Steel Co.
1209 Butler Ave., New Castle, Pa.

Bliss & Laughlin, Inc.
Harvey, Ill.

Boiardi Steel Corp.
Milton, Pa.

Borg Warner Corp. (Ingersoll Steel Div., Calumet Steel Div., Franklin Steel Div.)
310 S. Michigan Ave., Chicago 4, Ill.

Braeburn Alloy Steel Corp.
Braeburn, Pa.

Brainard Steel Co.
Warren, Ohio

Brooke Iron Co.
Birdsboro, Pa.

Buffalo Bolt Co.
101 East Ave., North Tonawanda, N. Y.

Buffalo Steel Co.
Tonawanda, N. Y.

Bundy Tubing Co.
8109 E. Jefferson Ave., Detroit 14, Mich.

Byers Co.
717 Liberty Ave., Pittsburgh 30

California Cold Rolled Steel Corp.
7140 Telegraph Road, Los Angeles 22.

California Wire Cloth Corp.
1080 19th Ave., Oakland 6, Calif.

Calumet Steel Division
310 S. Michigan Ave., Chicago, Ill.

Carpenter Steel Co.
101 West Bern St., Reading, Pa.

Cedarburg Wire, Wire Nail & Screw Co.
Cedarburg, Ozaukee County, Wis.

Central Iron and Steel Co.
Harrisburg, Pa.

Central Steel Tube Co.
Clinton, Iowa

Chester Blast Furnace, Inc.
Chester, Pa.

Chicago Steel & Wire Co.
10257 Torrence Ave., Chicago 17, Ill.

Claymont Steel Corp.
Claymont, Del.

Cleveland Cold Rolling Mills Co.
Stroud Road, R. F. D.—3, Berea, Ohio

Climax Molybdenum Co.
500 Fifth Ave., New York 18, N. Y.

Cold Metal Products Co.
2131 Wilson Ave., Youngstown 1, Ohio

Colonial Steel Co.
Monaca, Pa.

Colorado Fuel and Iron Corp.
Continental Oil Bldg., Denver 2, Colo.

Columbia Steel Co.
Russ Bldg., San Francisco 6, Calif.

Columbia Steel & Shaffing Co.
P. O. Box 1557, Pittsburgh 30, Pa.

Columbia Tool Steel Co.
14th St., Chicago Heights, Ill.

Compressed Steel Shaffing Co.
1687 Hyde Park Ave., Readville, Mass.

Connors Steel Co.
Birmingham 1, Ala.

Consolidated Western Steel Corp.
Box 2015, Terminal Annex, Los Angeles

Continental Steel Corp.
Kokomo, Ind.

Copperweld Steel Co.
Glassport, Pa.

Crown Cork & Seal Co., Inc.
4425 Eastern Ave., Baltimore 8, Md.

Crucible Steel Company of America
405 Lexington Ave., New York 17, N. Y.

Cumberland Steel Co.
Cumberland, Md.

Cuyahoga Steel & Wire Co.
Longwood Ave., Maple Heights, Cleveland

Davis Wire & Cable Corp. (K. H.)
2417 E. 23rd St., Los Angeles 11, Calif.

Detroit Steel Corp.
P. O. Box D, Porter Sta., Detroit 9, Mich.

Detroit Tube & Steel Div.
Detroit 8, Mich.

Disston & Sons, Inc., Henry
Tacony, Philadelphia 35, Pa.

Donner-Hanna Coke Corp.
Abby & Mystic Sts., Buffalo 20, N. Y.

Driscoll Wire Co.
Shelton, Conn.

Driver Co.
150 Riverside Ave., Newark 4, N. J.

Eastern Gas & Fuel Associates
250 Stuart St., Boston 16, Mass.

Eastern Stainless Steel Corp.
P. O. Box 1975, Baltimore 8, Md.

Edgewater Steel Co.
P. O. Box 478, Pittsburgh 30, Pa.

Elco Steel Products Co.
N. Cedar St., New Castle, Pa.

Electro Metallurgical Co.
30 East 42nd St., New York 17, N. Y.

Electroweld Steel Corp.
505 W. Foothill Blvd., Azusa, Calif.

Elliott Brothers Steel Co.
Taylor St., New Castle, Pa.

Empire Steel Corp.
Mansfield, Ohio

Erie Forge Co.
Erie, Pa.

Falls Hollow Staybolt Co.
7 Portage Trail, Cuyahoga Falls, Ohio

Firth Sterling Steel & Carbide Corp.
3113 Forbes St., Pittsburgh 13, Pa.

Fitzsimons Steel Co.
1623 Wilson Ave., Youngstown 1, Ohio

Follansbee Steel Corp.
Third and Liberty Aves., Pittsburgh 22, Pa.

Ford Motor Co.
3000 Schaefer Road, Dearborn, Mich.

Formed Tubes, Inc.
Prairie and Albert, Sturgis, Mich.

Fort Howard Steel & Wire
State & Ninth Sts., Green Bay, Wis.

Franklin Steel Division
310 S. Michigan Ave., Chicago 4, Ill.

Fretz-Moon Tube Co., Inc.
Box 551, Butler, Pa.

Geneva Steel Co.
P. O. Box 269, Salt Lake City 8, Utah

Globe Iron Co.
Jackson, Ohio

Globe Steel Tubes Co.
3839 W. Burnham St., Milwaukee 46, Wis.

Granite City Steel Co.
Granite City, Ill.

Great Lakes Steel Corp.
Ecorse, Detroit 29, Mich.

Greer Steel Co.
Dover, Ohio

Griffin Manufacturing Co.
Cherry and Huron Sts., Erie, Pa.

Hanna Furnace Corp. (The)
Ecorse, Detroit 29, Mich.

Harrisburg Steel Corp.
10th and Herr Sts., Harrisburg, Pa.

Heller Brothers Co.
865 Mt. Prospect Ave., Newark 4, N. J.

Heppenstall Co.
4620 Hatfield St., Pittsburgh 1, Pa.

Highland Iron & Steel, Inc.
Terre Haute, Ind.

Hind Steel Co., Inc.
2146 Stanley Terrace, Union, N. J.

Hofmann Industries, Inc.
Sinking Springs, Pa.

Igoe Brothers, Inc.
Avenue A & Poinier St., Newark 5, N. J.

Industrial Forge & Steel, Inc.
1502 Allen Ave., S. E., Canton 1, Ohio

Ingersoll Steel Division
310 S. Michigan Ave., Chicago 4, Ill.

Inland Steel Co.
88 S. Dearborn St., Chicago 3, Ill.

Interlake Iron Corp.
1900 Union Commerce Bldg., Cleveland

International Harvester Co.
180 N. Michigan Ave., Chicago 1, Ill.

Isaacson Iron Works, Inc.
P. O. Box 3028, Seattle 14, Wash.

Ivins Steel Tube Works, Inc. (Ellwood)
Oak Lane Station, Philadelphia, Pa.

Jackson Iron & Steel Co. (The)
Jackson, Ohio

Jersey Shore Steel Co.
Jersey Shore, Pa.

Jessop Steel Co.
Washington, Pa.

Johnson Steel & Wire Co., Inc.
53 Wiser Ave., Worcester 1, Mass.

Jones & Laughlin Steel Corp.
Third Ave. & Ross St., Pittsburgh 30, Pa.

Joslyn Manufacturing & Supply Co.
20 North Wacker Drive, Chicago 6, Ill.

Judson Steel Corp.
4200 Eastshore Highway, Emeryville, Calif.

Kaiser Steel Corp.
1924 Broadway, Oakland 12, Calif.

Kaiser & Frazer Parts Corp.
Willow Run, Mich.

Kane Boiler Works, Inc.
P. O. Box 546, Galveston, Texas

Keokuk Electro-Metals Co.
Keokuk, Iowa

Keystone Drawn Steel Co.
Main & Bridge Sts., Spring City, Pa.

Keystone Steel & Wire Co.
Peoria, Ill.

Kidd Drawn Steel Co.
Aliquippa, Pa.

Kilby Steel Co.
Anniston, Ala.

Knoxville Iron Co.
Knoxville 2, Tenn.

Laclede Steel Co.
Arcade Bldg., St. Louis 1, Mo.

STEEL COMPANIES OF THE UNITED STATES (CONTINUED)

- La Salle Steel Co.
919 N. Michigan Ave., Chicago 11, Ill.
- Latrobe Electric Steel Co.
2626 Ligonier St., Latrobe, Pa.
- Lavino and Co., E. J.
1528 Walnut St., Philadelphia 2, Pa.
- Lockhart Iron and Steel Co.
P. O. Box 1165, Pittsburgh 80, Pa.
- Lone Star Steel Co.
Dallas 5, Texas
- Lukens Steel Co.
Coatesville, Pa.
- Mac Whyte Co.
2906—14th Ave., Kenosha, Wis.
- McInnes Steel Co.
441 E. Main St., Corry, Pa.
- McLouth Steel Corp.
300 S. Livernois Ave., Detroit 17, Mich.
- Madison Wire Co.
Indian Church Road, Buffalo, N. Y.
- Mahoning Valley Steel Co.
McKees Lane, Niles, Ohio
- Mark & Company, Clayton
1900 Dempster St., Evanston, Ill.
- Master Tank & Welding, Ltd.
1612 Singleton Blvd., Dallas, Texas
- Medart Company
100 Potomac St., St. Louis 18, Mo.
- Mercer Tube & Mfg. Co.
200 Clark St., Sharon, Pa.
- Mesta Machine Co.
P. O. Box 1466, Pittsburgh 30, Pa.
- Metal & Thermit Corp.
100 East 42nd St., New York 17, N. Y.
- Michigan Seamless Tube Co.
400 West St., South Lyon, Mich.
- Mid-States Steel & Wire Co.
Crawfordsville, Ind.
- Midvale Company
Ninetown, Philadelphia 40, Pa.
- Missouri Rolling Mill Corp.
6800 Manchester Ave., St. Louis 10, Mo.
- Moltrup Steel Products Co.
Beaver Falls, Pa.
- Molybdenum Corp. of America
Grant Bldg., Pittsburgh 19, Pa.
- Monarch Steel Co., Inc.
141—141st St., Hammond, Ind.
- Monsanto Chemical Co.
1700 S. Second St., St. Louis 4, Mo.
- Mystic Iron Works
250 Stuart St., Boston 16, Mass.
- National Forge & Ordnance Co.
Irvine, Pa.
- National-Standard Co.
Niles, Mich.
- National Steel Corp.
2800 Grant Bldg., Pittsburgh 19, Pa.
- National Supply Co.
330 Grant St., Pittsburgh 30, Pa.
- National Tube Co.
525 William Penn Place, Pittsburgh 30, Pa.
- Naylor Pipe Co.
1230 E. 92nd St., Chicago 19, Ill.
- Nelsen Steel & Wire Co.
9400 Belmont Ave., Franklin Park, Ill.
- New England High Carbon Wire Co.
50 Howe Ave., Millbury, Mass.
- New Jersey Zinc Co.
160 Front St., New York 38, N. Y.
- Newman-Crosby Steel Co.
Pawtucket, R. I.
- Newport Steel Corp.
9th & Lowell Sts., Newport, Ky.
- Nichols Wire & Aluminum Co.
1725 Rockingham Road, Davenport, Iowa
- Nikoh Tube Co.
5000 S. Whipple St., Chicago 32, Ill.
- Niles Rolling Mill Co.
Niles, Ohio
- Northern Steel Inc.
44 School St., Boston 8, Mass.
- Northwest Steel Rolling Mills, Inc.
4315 Ninth Ave., N. W., Seattle 7, Wash.
- Northwestern Steel & Wire Co.
111 West Wallace St., Sterling, Ill.
- Ohio Ferro-Alloys Corp.
100 Citizens Bldg., Canton 2, Ohio
- Ohio River Steel Corp.
Box 186, Toronto, Ohio
- Ohio Seamless Tube Co.
West Main St., Shelby, Ohio
- Oregon Steel Mills
5250 N. W. Front Ave., Portland 10, Ore.
- Pacific States Steel Corp.
Latham Square Bldg., Oakland 12, Calif.
- Pacific Tube Co.
6710 Smithway St., Los Angeles 22, Calif.
- Parkersburg Steel Co.
Parkersburg, W. Va.
- Phoenix Iron & Steel Co.
Phoenixville, Pa.
- Phoenix Manufacturing Co.
Industry Ave., Joliet, Ill.
- Pilgrim Drawn Steel Division
2406 Fisher Bldg., Detroit 2, Mich.
- Pittsburgh Coke & Chemical Co.
1905 Grant Bldg., Pittsburgh 19, Pa.
- Pittsburgh Metallurgical Co., Inc.
3801 Highland Ave., Niagara Falls, N. Y.
- Pittsburgh Steel Co.
1600 Grant Bldg., P. O. Box 118, Pittsburgh 30, Pa.
- Pittsburgh Tool Steel Wire Co.
Monaca, Pa.
- Pittsburgh Tube Co.
212 Wood St., Pittsburgh 22, Pa.
- Pollak Steel Co.
820 Temple Bar Bldg., Cincinnati 2, Ohio
- Poor & Co., Inc.
50 Church St., New York 7, N. Y.
- Portsmouth Steel Div.
Portsmouth, Ohio
- Precision Drawn Steel Co.
3600 River Road, Camden, N. J.
- Prentiss & Co., George W.
439 Dwight St., Holyoke, Mass.
- Reeves Steel and Manufacturing Co.
Dover, Ohio
- Republic Steel Corp.
Republic Bldg., Cleveland 1, Ohio
- Rhode Island Steel Corp.
Pawtucket, R. I.
- Roebbling's Sons Co. (John A.)
640 South Broad St., Trenton 2, N. J.
- Rome Strip Steel Co.
530 Henry St., Rome, N. Y.
- Rotary Electric Steel Co.
Box 90, Detroit 20, Mich.
- Seneca Wire & Manufacturing Co.
P. O. Box 71, S. Vince St., Potosi, Ohio
- Service Steel Co.
1435 Franklin St., Detroit 7, Mich.
- Sharon Steel Corp.
Sharon, Pa.
- Sharon Tube Co.
249 N. Water Ave., Sharon, Pa.
- Sheet Steel Mills, Inc.
Shelby St., Indianapolis, Ind.
- Sheffield Steel Corp.
Sheffield Station, Kansas City 3, Mo.
- Shenango Furnace Co.
812 Oliver Bldg., Pittsburgh 22, Pa.
- Shenango-Penn Mold Co.
812 Oliver Bldg., Pittsburgh 22, Pa.
- Shenango Tube Co.
200 Clark St., Sharon, Pa.
- Sherman Steel & Wire Co.
1300 Pacific St., Sherman, Texas
- Sierra Drawn Steel Corp.
5821 E. Randolph St., Los Angeles, Calif.
- Simmons Co.
230 Park Ave., New York 17, N. Y.
- Simonds Saw and Steel Co.
470 Main St., Fitchburg, Mass.
- Sloss-Sheffield Steel & Iron Co.
Birmingham, Ala.
- Smith Corp., (A. O.)
3533 N. 27th St., Milwaukee 1, Wis.
- Smith Corp. of Texas (A. O.)
Houston, Texas
- South Chester Tube Co.
Front & Thurlow Sts., Chester, Pa.
- Southeastern Metals Co., Inc.
3925 29th St., North Birmingham, Ala.
- Southern Pipe & Casing Co.
P. O. Box C, Azusa, Calif.
- Spencer Wire Corp.
555 Lehigh Ave., Union, N. J.
- Standard Forgings Corp.
80 East Jackson Blvd., Chicago 4, Ill.
- Standard Steel Works Division
Burnham, Mifflin County, Pa.
- Standard Tube Co.
24400 Plymouth Road, Detroit 28, Mich.
- Stanley Works
New Britain, Conn.
- Superior Drawn Steel Co.
Monaca, Pa.
- Superior Sheet Steel Div.
Box 311, Canton, Ohio
- Superior Steel Corp.
Carnegie, Pa.
- Superior Tube Co.
Norristown, Pa.
- Sweet's Steel Co.
Williamsport, Pa.
- Taylor Forge & Pipe Works
P. O. Box 485, Chicago 90, Ill.
- Tennessee Coal, Iron and Railroad Co.
Brown-Marx Bldg., Birmingham 2, Ala.
- Tennessee Products & Chemical Corp.
American Natl. Bank Bldg., Nashville
- Texas Steel Co.
3901 Hemphill St., Fort Worth, Texas
- Thomas Steel Co. (The)
Warren, Ohio
- Thompson Wire Co.
41 Mildred Ave., Boston 26, Mass.
- Timken Roller Bearing Co., (The) Timken
Steel and Tube Division
1835 Dueber Ave., S. W., Canton, Ohio
- Titanium Alloy Manufacturing Division
111 Broadway, New York 6, N. Y.
- Toledo Steel Tube Co. (The)
2115 Smead Ave., Toledo 6, Ohio
- Tonawanda Iron Division
North Tonawanda, N. Y.
- Tredegar Co.
Richmond, Va.
- Tremont Nail Co.
15 Elm St., Wareham, Mass.
- Trent Tube Co.
Flume St., East Troy, Wis.
- Tube Reducing Corp.
520 Main Ave., Wallington, N. J.
- Union Electric Steel Corp.
2314 Oliver Bldg., Pittsburgh 22, Pa.
- Union Wire Rope Corp.
21st & Manchester Ave., Kansas City 3, Mo.
- United States Steel Co.
525 William Penn Place, Pittsburgh 30, Pa.
- United States Steel Corp.
71 Broadway, New York 6, N. Y.
- Universal-Cyclops Steel Corp.
Bridgeville, Pa.
- Vacuum Melt, Inc.
Camp Reynolds, Greenville, Pa.
- Valencia Iron & Chemical Corp.
P. O. Box 88, Ruak, Texas
- Valley Mould & Iron Corp.
Hubbard, Ohio
- Vanadium-Alloys Steel Co.
Latrobe, Pa.
- Vanadium Corp. of America
420 Lexington Ave., New York 17, N. Y.
- Vulcan Crucible Steel Co.
West Aliquippa, Pa.
- Wallace Barnes Co.
Bristol, Conn.
- Wallingford Steel Co.
Wallingford, Conn.
- Washburn Wire Co.
Phillipsdale 16, R. I.
- Washington Steel Corp.
Washington, Pa.
- Webb Wire Works
17 Liberty St., New Brunswick, N. J.
- Weirton Steel Co.
Weirton, W. Va.
- West Virginia Steel & Mfg. Co.
Huntington, W. Va.
- Western Automatic Machine Screw Co. (The)
Cold Drawn Bar Steel Division
Elyria, Ohio
- Wheatland Tube Co.
1300 Bankers Securities Bldg., Philadelphia
- Wheeling Steel Corp.
Wheeling, W. Va.
- Whitney Apollo Corp., Whitney Div.
Apollo, Pa.
- Wickwire Brothers, Inc.
189 Main St., Cortland, N. Y.
- Wickwire Spencer Steel Div.
Buffalo Plant, Tonawanda, N. Y.
- Wilson Steel & Wire Co.
4840 So. Western Ave., Chicago 9, Ill.
- Wisconsin Steel Co.
180 N. Michigan Ave., Chicago 1, Ill.
- Woodward Iron Co.
Woodward, Ala.
- Worcester Pressed Steel Co.
100 Barber Ave., Worcester 2, Mass.
- Wright Steel & Wire Co. (G. F.)
243 Stafford St., Worcester 3, Mass.
- Wyckoff Steel Co.
First Natl. Bank Bldg., Pittsburgh 30.
- Youngstown Sheet & Tube Co.
Stambaugh Bldg., Youngstown 1, Ohio

NONFERROUS METALS PRODUCTION, PRICES

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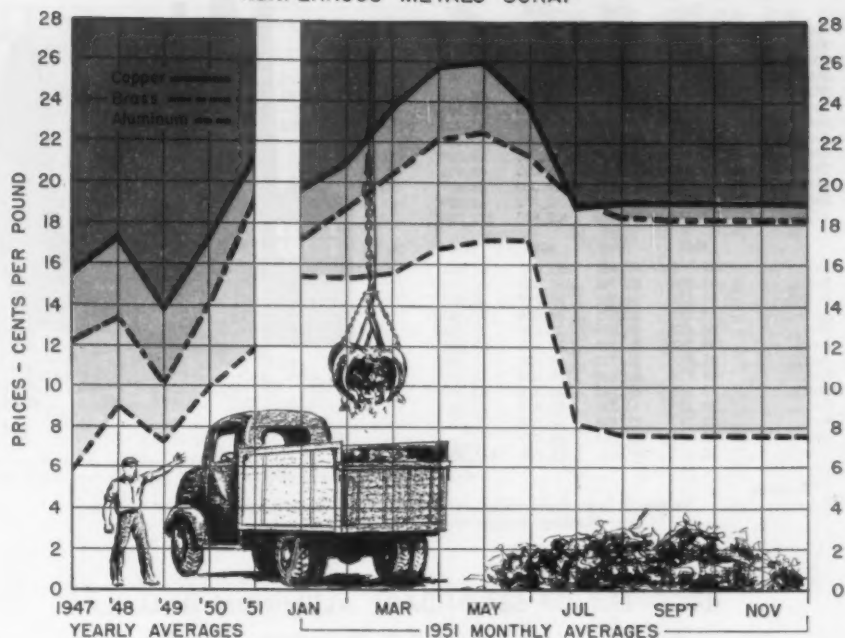
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Aluminum	414, 415
Brass ingots	417
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NONFERROUS

Aluminum production, recovery, imports and exports . . . Shipments of foil and wrought products . . . Secondary and scrap prices.

U. S. ALUMINUM PRODUCTION

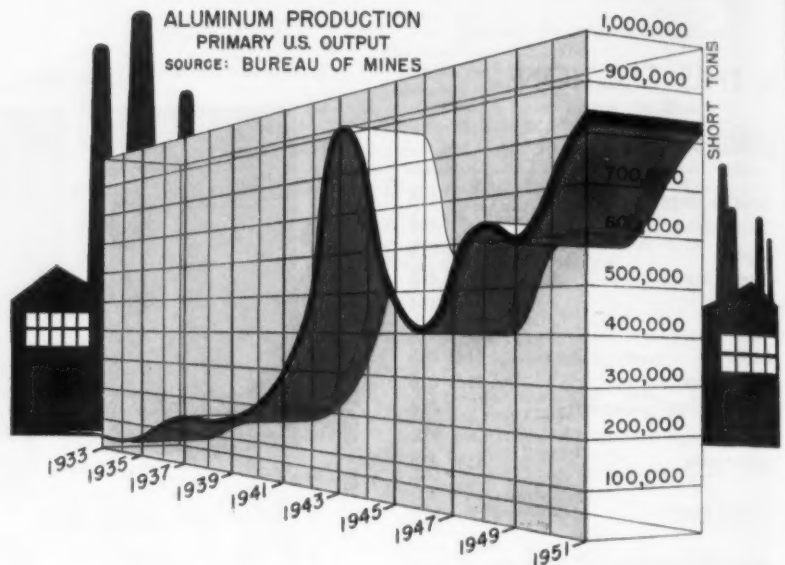
Short Tons, Primary Metal Only

	1944	1945	1946	1947
Jan.	84,750	48,650	24,750	50,045
Feb.	74,400	45,650	22,250	47,002
March	80,200	53,100	26,000	53,032
April	77,800	51,600	25,900	51,007
May	76,450	52,000	24,850	51,116
June	66,400	47,500	27,800	46,259
July	67,550	47,900	35,750	47,986
Aug.	81,650	45,800	39,650	47,054
Sept.	47,450	31,600	41,100	43,226
Oct.	48,400	25,000	45,000	43,959
Nov.	44,450	20,800	46,300	43,461
Dec.	48,850	24,000	50,700	47,589
Total	776,448	495,060	409,630	571,750

	1948	1949	1950	1951
Jan.	48,767	53,356	52,023	67,954
Feb.	45,699	49,749	50,443	62,740
March	51,874	54,852	59,747	70,022
April	53,277	54,076	58,024	67,701
May	58,450	56,909	61,929	67,721
June	48,557	54,184	60,400	67,454
July	52,937	55,777	63,518	72,690
Aug.	54,953	52,005	63,006	73,815
Sept.	53,255	49,742	59,449	69,429
Oct.	54,528	45,790	62,911	72,647
Nov.	50,714	35,865	62,276	68,429
Dec.	53,474	41,161	65,897	72,647
Total	23,483	203,452	718,622	835,000*

* Estimate.

Source: U. S. Bureau of Mines and Aluminum Association



ALUMINUM PRODUCTION
PRIMARY U.S. OUTPUT
SOURCE: BUREAU OF MINES

RECOVERY OF SECONDARY ALUMINUM IN U. S.

Short Tons, Broken Down by Form of Recovery, Since 1944.

Form of Recovery	1944	1945	1946	1947	1948	1949	1950
As Metal	2,336	2,145	2,075	5,105	2,384	343	2,140
Aluminum Alloys	320,040	293,957	274,068	338,200	282,302	176,502	239,577
In Brass and Bronze	1,466	1,162	597	307	455	450	270
In Zinc-Based Alloys	187	267	804	224	354	425	480
In Magnesium Alloys	1,616	846	563	379	506	441	331
In Chemical Compounds							
Total	325,645	298,367	278,073	344,837	286,777	180,762	243,686

Source: U. S. Bureau of Mines

ALUMINUM FOIL SHIPMENTS

Pounds, Earlier Data Not Available

1950	90,679,719
1951:	
January	9,260,598
February	8,629,783
March	9,611,894
April	9,262,781
May	8,357,750
June	7,430,852
July	6,918,091
August	7,277,325
September	7,210,055
October	7,521,064
1951:	
First 10 Months	82,280,973

Source: Aluminum Association

ALUMINUM SCRAP, CAST

Cents Per Pound, f.o.b. New York*

	1947	1948	1949	1950	1951
Jan.	7.36	6.15	12.00	7.38	15.55
Feb.	6.70	6.75	10.25	7.25	15.50
March	6.80	6.75	8.10	7.25	15.63
April	6.47	7.05	6.72	7.38	16.88
May	6.30	8.25	6.25	7.88	17.25
June	6.63	9.00	5.65	8.65	17.25
July	5.25	10.65	5.38	8.75	8.15
Aug.	5.25	11.00	6.25	9.88	7.75
Sept.	5.25	9.85	7.30	12.00	7.75
Oct.	5.25	9.88	7.60	13.88	7.75
Nov.	5.38	11.88	8.00	15.15	7.75
Dec.	5.75	12.55	7.75	15.75	7.75
Average	6.82	8.15	7.60	10.10	12.08

* Dealers' Buying Price.

ALUMINUM WROUGHT PRODUCTS

Short Tons of Shipments Since 1943

	Plate, Sheet and Strip	Rolled Structural Rod, Bar, Wire	Extruded Shapes, Tubing and Blooms	Powder, Flake, Paste
1943	420,500			
1944	448,900			
1945	369,300			
1946	570,425	433,491	65,319	8,576
1947	704,076	555,580	76,690	61,524
1948	820,103	634,149	61,496	85,982
1949	579,073	395,013	101,825	74,998
1950	844,845	671,082	134,690	127,615
1951*	742,259	460,397	139,063	132,596

* 10 month total.

Source: U. S. Bureau of the Census

REMELT ALUMINUM INGOT

No. 12, Cents Per Pound, Cars*

	1947	1948	1949	1950	1951
Jan.	16.47	15.60	25.50	16.50	30.60
Feb.	16.31	16.31	23.53	16.50	30.25
March	15.62	16.50	20.25	16.30	30.50
April	14.88	16.82	17.59	16.06	30.75
May	14.40	19.00	16.50	16.75	30.75
June	13.81	19.81	18.04	17.73	30.75
July	13.25	23.67	14.63	18.13	19.50
Aug.	13.50	23.75	15.38	21.85	19.50
Sept.	13.63	23.60	15.75	26.25	19.50
Oct.	13.75	23.63	15.75	27.00	19.50
Nov.	14.28	25.84	16.13	30.175	19.50
Dec.	15.34	26.50	16.50	31.00	19.50
Average	14.60	20.93	17.71	21.19	25.05

* Delivered.

U. S. ALUMINUM IMPORTS

Short Tons, Imports for Consumption

	Semi-Finished Products†	Metal, Alloys Crude	Scrap
1936	202	12,579	
1937	238	22,351	
1938	114	8,756	
1939	306	9,984	5,046
1940	552	17,435	840
1941	528	12,830	51
1942	5,855	106,257	241
1943	76	135,595	1,794
1944	654	100,315	5,198
1945	1,688	332,437	14,480
1946	1,120	41,487	18,718
1947	31	15,579	71,794
1948	5,912	83,227	71,794
1949	7,863	77,342	40,120
1950	10,692	176,489	68,947
1951:			
January	2,456	20,827	5,133
February	4,303	6,129	1,671
March	2,071	19,286	2,557
April	1,702	16,302	966
May	1,398	9,431	701
June	1,549	12,171	1,133
July	1,326	7,302	1,997
August	1,219	9,022	294
September	1,395	3,914	243
1951:			
Nine Months	14,963	104,384	14,917

† Plates, sheets, bars, etc.

Source: U. S. Bureau of Mines

U. S. ALUMINUM EXPORTS

Short Tons, by Form, Since 1934

	Semi-Finished Products†	Manufactured Products*	Ingots, Slabs Crude	Scrap
1934	102	257	4,026	
1935	310	475	1,681	
1936	326	728	477	
1937	332	1,047	2,360	
1938	1,474	738	4,835	
1939	8,488	1,610	28,121	475
1940	14,659	3,497	12,227	950
1941	6,655	1,178	750	57
1942	20,813	4,979	17,834	32
1943	60,851	7,533	56,741	14
1944	55,019	19,326	133,089	413
1945	3,532	6,512	2,209	802
1946	15,587	6,427	1,107	645
1947	50,235	10,204	12,098	789
1948	47,869	7,199	1,239	438
1949	28,764	4,932	8,018	397
1950	19,823		661	784
1951:				
8 Mos.	8,994		631	

† Plates, sheet, bars, etc.

* Includes only tubes, moldings, foil and leaf, table, kitchen and hospital utensils, powders and pastes up to 1948. In 1949, wire and manufactures, and materials for construction were also included.

Source: U. S. Bureau of Mines

World Copper Production . . . U. S. Bauxite Imports . . . Aluminum Distribution, Prices, Extrusion Shipments and World Production.

NONFERROUS

WORLD PRODUCTION OF ALUMINUM SINCE 1942

Short Tons, Not Including Russian Production and the Small Output in Brazil.

Country	1942	1943	1944	1945	1946	1947	1948	1949	1950
United States	521,106	920,179	776,446	495,080	409,630	571,750	623,458	603,462	718,622
Canada	340,596	495,750	462,065	215,713	194,117	299,068	367,079	369,456	394,756
Total America	861,702	1,415,929	1,238,511	710,793	603,747	870,818	990,535	972,928	1,113,378
Austria	40,561	50,700		5,787	1,139	4,796	14,723	16,309	19,828
France	49,824	51,257	28,825	41,033	52,857	58,670	71,418	59,679	68,928
Germany	250,367	223,842	210,539	*22,000			(c) 18,033	31,797	30,698
Great Britain	52,387	62,341	39,724	35,722	35,329	32,407	33,629	33,995	33,004
Italy	47,995	52,020	18,514	4,792	12,169	27,492	35,495	23,332	43,882
Hungary	6,570	10,428	14,539	2,592	2,172	5,735	10,362	9,039	
Norway	22,595	25,919	22,085	5,079	18,400	23,947	34,216	39,349	52,036
Spain	818	879	227	653	1,110	1,102	577	723	*1,200
Sweden	1,426	3,937	4,104	3,567	3,931	3,189	3,611	4,331	4,451
Switzerland	26,455	*22,000	*8,000	*5,500	15,400	20,346	20,994	23,148	23,148
Total Europe (a)	498,990	503,323	390,756	126,725	142,506	177,593	234,052	246,688	
Others (c):									
Taiwan Province, China	13,315	11,777	8,807	853					
India		1,402	1,899	2,485	3,567	3,544	3,709	3,847	3,954
Japan	83,069	119,062	120,728	18,135	3,519	2,976	7,672	23,393	27,793
Korea		4,813	13,611	14,267					
Manchuria (b)	8,195	9,432	8,600						

(a) Excluding Yugoslavia, Russia, and East Germany. (b) Fiscal year beginning April 1. (c) Practically all by the Topping works in American Zone. * Estimated.

Source: American Bureau of Metal Statistics

ALUMINUM 99 PCT PLUS

Cents Per Pound, Freight Allowed

	1934	1936	1937	1938	1939	1940
Jan.	23.30	20.50	20.50	20.00	20.00	20.00
Feb.	21.85	20.50	20.50	20.00	20.00	20.00
March	21.85	20.50	20.00	20.00	20.00	20.00
April	21.85	20.50	20.00	20.00	20.00	19.00
May	21.85	20.50	20.00	20.00	20.00	19.00
June	21.85	20.50	20.00	20.00	20.00	19.00
July	21.85	20.50	20.00	20.00	20.00	19.00
Aug.	21.85	20.50	20.00	20.00	20.00	19.00
Sept.	21.85	20.50	20.00	20.00	20.00	19.00
Oct.	21.49	20.51	20.00	20.00	20.01	18.00
Nov.	20.50	20.50	20.00	20.00	20.00	17.50
Dec.	20.50	20.50	20.00	20.00	20.00	17.00
Average	21.58	20.50	20.06	20.00	20.00	18.71

	1941	1948	1949	1950	1951
Jan.	17.00	15.00	17.00	17.00	18.00
Feb.	17.00	15.00	17.00	17.00	18.00
March	17.00	15.00	17.00	17.00	18.00
April	17.00	15.00	17.00	17.00	18.00
May	17.00	15.00	17.00	17.00	18.00
June	17.00	15.00	17.00	17.00	18.00
July	17.00	15.00	17.00	17.00	18.00
Aug.	17.00	15.00	17.00	17.00	18.00
Sept.	17.00	15.00	17.00	17.00	18.00
Oct.	15.00	15.00	17.00	17.00	18.00
Nov.	15.00	17.00	17.00	17.00	18.00
Dec.	15.00	17.00	17.00	17.00	18.00
Average	16.50	15.06	17.00	17.00	18.00

WORLD PRODUCTION OF COPPER FROM ORES

Short Tons, Not Including Copper Derived From Scrap.

Country	1942	1943	1944	1945	1946	1947	1948	1949	1950
United States	1,097,175	1,114,149	1,006,653	805,174	603,868	874,105	855,193	781,934	915,449
Mexico	56,907	50,642	47,589	67,784	64,693	72,575	63,923	70,932	65,238
Canada	301,831	287,595	273,535	237,457	183,969	225,891	240,732	233,457	231,914
Newfoundland	6,500	6,200	5,500	5,200	4,900	4,250	4,550		
Cuba	11,023	7,059	7,257	9,994	12,480	15,132	17,959	19,179	22,693
Bolivia	7,028	6,626	6,800	6,721	6,754	6,879	7,293	5,593	5,195
Chile	533,902	548,016	549,517	518,304	397,972	470,318	490,597	409,055	399,897
Peru	38,935	38,825	35,710	35,181	27,108	24,793	19,917	30,819	30,702
Ecuador	3,000	3,000	4,065	4,216	2,888	158	623	778	680
Total America	2,056,301	2,060,109	1,936,626	1,690,031	1,304,629	1,694,172	1,700,704	1,551,444	1,701,623
Austria	1,082	1,505	1,853	353	138	295	1,092	1,429	1,808
Finland	17,221	17,073	17,462	16,510	19,400	19,200	25,713	25,811	16,993
Germany	25,240	25,766	23,148	6,600	516(c)	283(c)	401(c)	982(c)	1,500(c)
Italy	4,500	2,800(b)	400	2,400	115	105	99	33	60
Norway	17,054	17,900	15,900	5,735	13,500	16,212	16,659	18,399	16,975
Spain	11,600	12,250	12,100	9,100	7,114	6,099	7,114	6,099	7,498
Sweden	19,903	19,686	17,770	16,453	19,934	14,489	16,333	17,935	17,748
Yugoslavia	35,300	29,800	25,000	13,800	35,500	44,600	57,933	37,530	44,100
Other Europe		1,000	1,100	700	500	1,000	16,890	17,000	
Total Europe	132,100	127,700	114,533	71,651	100,003	103,269	141,072	125,459	103,630(a)
Formosa	5,685	6,636	4,393						
Japan	91,561	104,419	95,728	30,847	18,839	24,127	23,333	39,090	43,345
India (c)	6,579	6,832	6,418	6,720	7,088	6,643	6,587	7,157	7,408
Turkey	9,103	10,725	12,076	10,800	10,979	11,111	12,102	11,899	12,793
Philippines		9,800	2,400	2,300		2,502	2,300	7,724	11,445
Cyprus		6,706	1,695	1,100	2,950	17,400	21,500	30,912	31,834
South Korea		2,262	2,998	1,379	575	429	73	31	
Other Asia		9,200	8,300	1,800	4,000	6,500	7,500	9,800	
Total Asia	112,826	148,944	129,615	54,946	44,461	68,712	78,395	103,633	108,876(a)
Belgian Congo	182,916	172,896	182,413	176,800	158,604	166,271	171,424	155,834	193,917
Rhodesia	279,959	276,955	246,498	215,572	204,922	218,222	234,647	289,949	314,589
Southwest Africa		5,500				4,575	6,616	9,514	10,978
Union of South Africa	28,200	25,100	25,935	27,211	30,000	32,400	32,330	33,030	38,848
Other Africa		500	800	200	200	100	900	1,300	
Total Africa	490,976	490,951	455,646	419,583	393,726	421,568	445,887	489,694	558,032(a)
Australia	22,500	27,300	31,500	27,800	19,898	14,698	13,793	15,080	17,549
Russia		143,300	148,800	154,300	165,300	181,900	198,400	220,500	240,000
Total World, as Reported	2,814,704	2,988,304	2,816,720	2,418,011	2,028,005	2,484,318	2,576,251	2,515,770	2,730,751a

(a) Total based on incomplete returns. (b) January-June. (c) West Germany. In this table, which surveys mine production the credits to the several countries are for copper smelted domestically plus copper in ores from them smelted in other countries; or copper content of ores and concentrates produced in countries which do no smelting. Source: American Bureau of Metal Statistics

U. S. BAUXITE IMPORTS

Long Tons, By Country of Origin

	Total	Surinam	British Guiana	Indonesia
1943	1,547,854			
1944	560,461	518,208	42,253	
1945	739,581	713,854	25,727	
1946	852,005	802,288	49,717	
1947	1,821,580	1,660,823	108,562	82,195
1948	2,448,915	2,051,265	114,764	302,079
1949	2,688,184	2,013,187	99,821	675,137
1950	2,476,694	1,923,663	91,399	447,457

1951:				
1st Qtr.	686,981	558,420	35,567	88,529
2nd Qtr.	676,547	583,541	32,217	49,903

Source: U. S. Department of Commerce

ALUMINUM EXTRUSIONS

Tons, Shipped, Incl. Tubes and Blooms

	1948	1949	1950	1951
Jan.	6,293	7,119	7,843	12,756
Feb.	7,162	6,914	7,757	14,028
March	8,016	7,873	9,762	15,591
April	8,055	6,846	9,247	13,285
May	7,783	6,028	10,128	12,420
June	8,425	8,623	11,041	13,486
July	7,417	4,763	10,068	11,008
Aug.	7,276	4,903	12,622	14,393
Sept.	5,612	5,258	12,800	11,455
Oct.	6,080	5,923	13,039	13,815
Nov.	6,841	6,026	11,939	
Dec.	7,034	7,222	11,352	
Total	85,982	74,998	127,615	132,696*

* Ten Months. Source: Bureau of Census

ALUMINUM DISTRIBUTION

By Consuming Industries, in Pct.

	1947	1948	1949	1950
Building	29.6	23.4	24.3	23.1
Transportation	13.2	14.3	16.8	16.5
Power	5.8	6.3	9.2	10.0
Home Appliances	6.1	8.6	6.6	7.1
Utensils	7.7	7.4	5.7	5.1
Industrial Machinery	6.5	6.0	4.3	3.3
Fabricators (Further Processing)	16.7	18.9	19.8	19.3
All Others	12.6	15.1	13.8	15.4

NONFERROUS

Copper production, consumption, imports and exports . . . Scrap copper recovery and prices . . . Prices of electrolytic copper.

DOMESTIC COPPER MINE PRODUCTION, MONTHLY

Short Tons, Based On Smelter Receipts to 1944; Actual Mine Output Since 1944

Month	1943	1944	1945	1946	1947	1948	1949	1950	1951
Jan.	91,729	88,820	70,088	65,381	70,056	73,150	50,002	71,464	80,352
Feb.	85,367	87,622	83,962	41,934	68,416	68,943	56,410	67,286	73,012
Mar.	93,479	94,446	70,004	42,018	74,651	74,092	77,912	76,083	83,104
Apr.	91,420	86,106	67,483	32,295	72,418	74,344	72,843	73,351	82,554
May	94,919	88,055	72,018	33,526	76,164	74,779	67,412	74,522	83,814
June	89,826	83,480	67,910	33,171	70,150	75,596	61,254	74,680	75,910
July	88,352	76,172	62,100	53,948	73,310	71,340	56,615	72,525	75,437
Aug.	87,510	77,390	61,617	57,183	72,005	73,546	55,898	80,199	72,004
Sept.	90,398	74,846	59,854	62,667	70,770	69,630	58,111	76,744	71,288
Oct.	94,521	73,045	61,555	65,625	66,145	68,256	60,515	77,800	83,775
Nov.	99,942	68,909	58,664	62,336	83,278	51,318	66,044	81,957	.....
Dec.	92,055	71,658	57,429	68,673	71,200	60,668	69,734	81,712	.....
Total	1,090,819	972,549	772,694	608,737	947,563	825,666	752,750	907,000	781,230*

* Ten months.

Source: U. S. Bureau of Mines

SECONDARY COPPER RECOVERY

Net Tons, Showing Form of Recovery

Form of Recovery	1945	1946	1947
As unalloyed copper:			
At primary plants	96,662	105,572	289,085
At other plants	16,194	31,337	34,007
	112,856	136,909	303,092

In brass and bronze	860,287	630,588	619,576
In alloy iron and steel	2,133	1,932	2,830
In aluminum alloys	12,035	14,434	16,962
In other alloys	519	491	443
In chemical compounds	16,666	19,192	18,838

893,660 668,637 656,649

1,006,516 803,546 981,741

Form of Recovery	1948	1949	1950
As unalloyed copper:			
At primary plants	245,376	212,392	189,746
At other plants	38,650	37,697	70,958

284,026 250,089 260,704

In brass and bronze	653,281	436,457	679,849
In alloy iron and steel	2,911	1,582	2,381
In aluminum alloys	14,678	9,951	16,621
In other alloys	290	254	271
In chemical compounds	17,612	14,840	17,413

688,762 463,054 716,535

972,788 713,143 977,239

Source: Bureau of Mines

ELECTROLYTIC COPPER

Cents Per Pound, Conn. Valley

	1934	1936	1938	1939	1940
Jan.	8.18	9.25	10.42	11.25	12.22
Feb.	8.00	9.25	10.00	11.25	11.40
Mar.	8.00	9.25	10.00	11.25	11.38
Apr.	8.39	9.40	10.00	10.47	11.33
May	8.80	9.50	9.60	10.06	11.32
June	8.82	9.50	9.00	10.00	11.37
July	9.00	9.60	9.81	10.22	10.81
Aug.	9.00	9.75	10.12	10.49	10.95
Sept.	9.00	9.75	10.25	11.93	11.54
Oct.	9.00	9.85	10.98	12.44	12.00
Nov.	9.00	10.43	11.25	12.50	12.00
Dec.	9.00	11.00	11.25	12.50	12.00

Average 8.66 9.71 10.22 11.20 11.53

	1946	1947	1948	1949	1950	1951
Jan.	12.00	19.56	21.50	23.50	18.50	24.80
Feb.	12.00	19.75	21.50	23.60	18.50	24.50
Mar.	12.00	21.50	21.50	23.49	18.50	24.50
Apr.	12.00	21.50	21.50	21.72	18.94	24.50
May	12.00	22.63	21.50	18.05	19.92	24.50
June	14.28	21.63	21.50	16.66	22.27	24.50

July	14.375	21.50	21.50	17.33	22.50	24.50
Aug.	14.375	21.50	23.43	17.63	22.54	24.50
Sept.	14.375	21.50	23.50	17.63	23.25	24.50
Oct.	14.375	21.50	23.50	17.63	24.50	24.50
Nov.	17.19	21.50	23.50	18.42	24.50	24.50
Dec.	19.50	21.50	23.50	18.50	24.50	24.50

Average 14.04 21.30 22.33 19.51 21.54 24.50

For data on CMP regulations, officials of controls agencies, NPA forms, see special section beginning on p. 327. It also lists armed forces buying offices.

REFINED COPPER CONSUMPTION

Primary and Secondary, Short Tons

	1948	1949	1950
Cathodes	85,725	66,119	127,035
Wire bars	806,073	686,591	802,636
Ingot, ingot bars	140,875	89,777	125,709
Cakes and slabs	210,170	163,359	213,446
Billets	170,413	109,786	160,491
Other	7,328	165	34

1,420,584 1,097,797 1,429,351

Source: U. S. Bureau of Mines

No. 1 HEAVY COPPER SCRAP

Cents Per Pound, f.o.b. New York*

	1947	1948	1949	1950	1951
Jan.	15.50	16.85	18.75	13.97	19.75
Feb.	15.88	16.44	18.13	14.06	21.06
Mar.	16.50	16.25	16.66	13.88	23.88
Apr.	17.00	16.60	14.13	14.19	25.88
May	16.30	16.75	11.97	15.13	26.00
June	14.50	16.75	10.60	16.98	23.88
July	14.65	17.00	11.88	16.94	18.90
Aug.	15.88	17.88	12.31	18.66	19.00
Sept.	15.75	17.65	12.93	20.38	19.00
Oct.	15.75	17.72	12.25	22.25	19.00
Nov.	15.88	18.47	12.44	24.75	19.00
Dec.	16.50	19.25	13.26	19.75	19.00
Average	15.84	17.30	13.78	17.58	21.20

* Dealers Buying Price.

CRUDE COPPER PRODUCTION

Short Tons, From Domestic Ores**

	1945 to 1980	1939	1940
1981 to 1990	149,738*	1940	712,675
1901 to 1910	428,172*	1941	869,094
1911 to 1920	718,056*	1942	869,072
1921 to 1930	742,340*	1943	1,067,961
1931	621,358	1944	1,067,961
1932	272,005	1945	1,067,961
1933	225,000	1946	1,067,961
1934	244,227	1947	1,067,961
1935	381,294	1948	1,067,961
1936	611,410	1949	1,067,961
1937	834,661	1950	1,067,961
1938	662,328	1951†	1,067,961

* Yearly averages.

† Nine months.

** Smelter output.

Source: Bureau of Mines

U. S. COPPER IMPORTS

Net Tons, Except Manufactures

	1930	1941	1942
1931	406,577	735,540	757,974
1932	292,946	716,396	716,396
1933	195,996	716,396	716,396
1934	143,717	716,396	716,396
1935	213,286	716,396	716,396
1936	257,182	716,396	716,396
1937	190,339	716,396	716,396
1938	279,875	716,396	716,396
1939	282,164	716,396	716,396
1940	336,297	716,396	716,396
1941	491,342	716,396	716,396

Imports for consumption plus entries under bond.

* Nine months.

Source: Bureau of Mines, Dept. of Commerce, and American Bureau of Metal Statistics

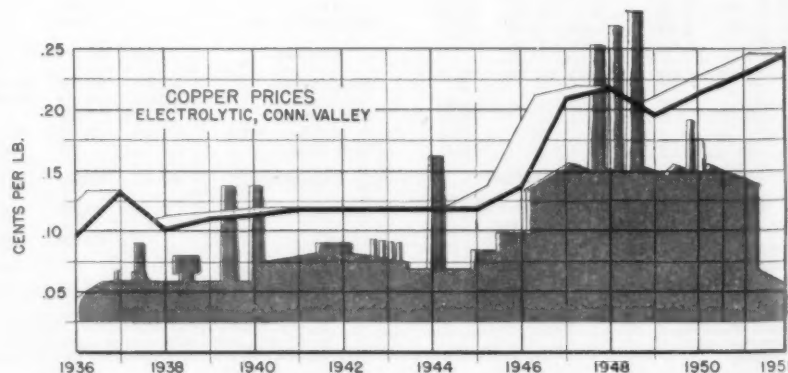
U. S. REFINED COPPER EXPORTS

Net Tons, With Primary Manufactures

	1930	1941	1942
1931	376,557	158,893	212,306
1932	278,767	212,306	212,306
1933	147,678	212,306	212,306
1934	151,913	212,306	212,306
1935	296,359	212,306	212,306
1936	295,198	212,306	212,306
1937	259,032	212,306	212,306
1938	345,584	212,306	212,306
1939	421,012	212,306	212,306
1940	427,517	212,306	212,306
1941	427,650	212,306	212,306

* Nine months.

Source: Bureau of Mines, Dept. of Commerce, and American Bureau of Metal Statistics



Imports and world production of antimony
... Scrap brass prices ... Remelt brass
and bronze ingot shipments and prices.

NONFERROUS

BRASS SCRAP, No. 1 COMP.

Cents Per Pound, f.o.b. New York*

	1947	1948	1949	1950	1951
Jan.	14.45	12.45	14.19	11.13	17.25
Feb.	14.22	12.44	13.06	11.13	18.75
March	14.37	13.33	11.83	11.13	20.50
April	14.43	12.85	9.19	11.50	22.19
May	13.20	12.88	8.58	12.44	22.50
June	11.50	12.75	8.13	13.95	21.31
July	10.75	13.75	8.69	14.13	19.18
Aug.	10.75	14.28	8.88	15.50	18.75
Sept.	10.75	13.57	9.23	17.25	18.28
Oct.	10.85	14.41	9.13	17.75	18.25
Nov.	11.38	15.19	11.08	18.88	18.25
Dec.	12.00	14.95	10.73	18.59	18.25
Average	12.39	13.57	10.22	14.28	19.43

* Dealers' Buying Price.

BRONZE INGOTS, 88-10-2

No. 245, Cents Per Pound, Cars*

	1947	1948	1949	1950	1951
Jan.	21.75	23.25	24.13	19.63	38.00
Feb.	21.75	22.13	23.26	19.63	38.00
March	23.06	21.42	21.61	19.63	38.75
April	23.69	21.95	20.26	20.00	37.00
May	22.85	22.25	17.82	20.72	37.00
June	21.38	23.00	16.71	23.70	37.00
July	20.55	23.25	16.51	24.38	37.00
Aug.	21.25	24.38	16.76	27.55	37.00
Sept.	20.50	24.60	17.41	29.88	34.38
Oct.	19.75	24.38	17.63	32.50	33.50
Nov.	19.75	25.57	18.81	36.20	33.50
Dec.	21.88	25.16	18.35	37.00	33.50
Average	21.49	23.48	19.11	25.90	35.72

* Delivered.

BRASS INGOTS, 85-5-5-5

No. 115, Cents Per Pound, Cars*

	1947	1948	1949	1950	1951
Jan.	20.50	19.60	20.38	17.50	29.00
Feb.	20.50	19.31	19.01	17.50	29.00
March	21.25	18.95	17.96	17.50	29.00
April	21.50	19.22	18.94	17.61	29.00
May	20.30	19.19	15.07	18.41	29.00
June	19.13	19.12	13.96	21.33	29.00
July	18.20	19.75	13.76	22.11	29.00
Aug.	19.00	21.06	14.13	23.80	29.00
Sept.	18.38	21.30	14.91	25.50	27.69
Oct.	17.75	20.94	15.13	26.63	27.25
Nov.	17.75	21.65	16.81	28.60	27.25
Dec.	18.31	21.21	16.85	29.00	27.25
Average	19.38	20.11	16.24	21.14	28.45

* Delivered.

INGOT BRASS AND BRONZE

Short Tons of Shipments, Monthly*

	1947	1948	1949	1950	1951
Jan.	27,841	26,998	19,456	18,874	28,416
Feb.	24,686	22,467	15,026	18,487	27,168
Mar.	27,477	24,282	14,550	22,494	31,997
Apr.	24,577	25,177	10,095	22,118	30,472
May	19,525	23,716	11,114	23,643	33,267
June	16,929	24,401	9,696	25,093	33,817
July	16,728	20,458	10,220	21,609	32,016
Aug.	18,589	24,068	14,194	29,689	25,285
Sept.	19,025	23,641	16,209	28,811	22,285
Oct.	22,806	21,569	18,036	32,240	23,124
Nov.	21,666	21,731	18,488	31,748	23,544
Dec.	23,862	20,954	17,900	28,757	
Total	283,711	279,500	175,643	303,563	312,191†

* Delivered.

† Eleven months.

Source: Ingot Brass & Bronze Institute

WORLD PRODUCTION OF ANTIMONY, SINCE 1942

Metric Tons, Estimated Production of Other Nations is Included in Total

Country	1942	1943	1944	1945	1946	1947	1948	1949	1950*
Canada	1,269	465	809	696	286	480	124	84	295
Mexico ²	10,759	12,585	10,056	8,053	8,048	6,371	5,790	5,293	5,225
United States	2,457	4,638	3,952	1,611	2,091	4,437	5,416	1,385	2,800
Bolivia (exports)	16,231	16,536	6,852	5,093	6,407	9,989	11,280	9,453	8,781
Peru	1,457	2,472	932	2,041	969	1,140	1,770	750	1,009
Austria	391	571	658	132	15	82	247	1,349	(4)
Czechoslovakia	(3)3,130	(4)	(4)	1,115	2,156	1,434	1,593	(4)	(4)
France	128	153	116	153	202	200	1,314	1,003	1,100
Hungary ³	2,200	1,500 (5)(6)1,180	(8)				(4)	(4)	(4)
Italy	667	322	403	348	330	450	430	330	498
Spain	210	176	128	108	98	84	(7)270	150	(4)
Burma ³	843	843	843	(4)	(4)	86	(4)	(4)	(4)
China	(8)3,510	(9)505	(8)203		426	1,909	3,251	(4)	(4)
Japan	350	800	450	210	49	100	124	158	(4)
Turkey (Asia Minor)	40	8	58	33	36	103	520	420	454
Algeria	304	902	170	423		110	817	1,288	1,353
Morocco:									
French	322	409	166	353	260	390	411	600	(4)
Spanish	144	153	72	52	183	128	(8)	150	(4)
Southern Rhodesia	169	164	116	29	15	38	10	34	(4)
Union of South Africa	990	1,560	2,570	2,250	2,330	3,020	3,700	4,100	8,412
Australia	1,042	532	454	172	460	162	39	197	227
Total (except U.S.S.R.)	51,400	53,209	36,400	26,900	25,400	34,800	41,300		

(1) Approximate recoverable metal content of ore produced, exclusive of antimonial lead ores; 92 pct of reported gross content is used as basis for calculations in nearly every instance. U.S.S.R. and Yugoslavia produce antimony but data on production are not available; an estimate for Yugoslavia is included in the total. Minor producing nations include Honduras, Argentina, Portugal, in Iochina, Iran, Pakistan, Siam and New Zealand.

(2) Includes antimony content of antimonial lead.

(3) Estimate.

(4) Data not available; estimate included in total.

(5) January to June inclusive.

(6) Data represent Trianon Hungary after October 1944.

(7) Includes Spanish Morocco.

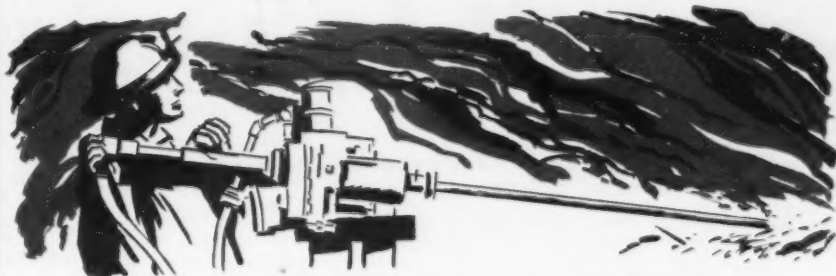
(8) Data represent area designated as Free China during the period of Japanese occupation.

(9) Included under Spain.

(10) Excludes Soviet Zone, data not available.

* American Bureau of Metal Statistics.

Source: U. S. Bureau of Mines



IMPORTS OF ANTIMONY INTO UNITED STATES

Short Tons, Imports of Antimony for Consumption Plus Entries in Bond

	1947		1948		1949		1950		1951 (7 Mos.)	
	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal
Belgium and Luxembourg		56		210			49	935		112
Bolivia†	2,435		3,310		3,153		5,404		2,607	
Canada	145		31		49				332	
Chile†	348		280		544		634		364	
China		5,815		2,986		313				
French Morocco		95					79		59	
Honduras		6			8				5	
Italy			30		44					
Japan							23			
Mexico	6,138		8,674		54	2,985	767	3,121	1,428	2,668
Netherlands							11		138	
Peru†	156		1,062		727		254		190	
Portugal			17		7					
Siam	12		55		3		16			
South Africa										
Trieste							5			
Turkey	53									
United Kingdom		28					78			
Yugoslavia			22		132		472		938	
Total imports	9,287	5,899	13,532	3,416	7,473	2,081	9,580	3,440	6,672	947

† Imports shown from Chile were probably mined in Bolivia or Peru.

Source: U. S. Dept. of Commerce

NONFERROUS

Nickel prices, use, production and imports
... U. S. antimony prices and production.

ANTIMONY PRICES, MONTHLY 1929 TO 1951

Cents per pound for American metal f.o.b. Laredo, Tex., since Apr. 1, 1942

	1929	1934	1938	1937	1938	1939*	1942†	1946†	1947	1948	1949	1950	1951
Jan.	9.62	7.23½	13.22	14.06¼	15.47	14.00	18.50	14.50	28.25	33.00	38.50	30.05	34.50
Feb.	9.61	7.15	12.97	14.68¼	15.72	14.00	18.50	14.50	28.25	33.00	38.50	27.75	42.00
Mar.	9.52	7.45	13.37½	16.81¼	15.75	14.00	16.50	14.50	30.82½	33.00	38.50	24.50	42.00
Apr.	9.59	7.86¼	13.50	17.00	15.62½	14.00	14.50	14.50	33.00	33.00	38.50	24.50	42.00
May	9.12½	8.35½	13.50	15.81¼	14.75	14.00	14.50	14.50	33.00	33.00	38.50	24.50	42.00
June	8.90	7.98¾	13.25	14.81¼	13.90	14.00	14.50	14.50	33.00	35.00	38.50	24.50	42.00
July	8.56	7.93¾	13.00	14.72½	14.00	14.00	14.50	14.50	33.00	35.00	38.50	24.50	42.00
Aug.	8.83¾	8.40	12.62½	15.34	14.00	14.00	14.50	14.50	33.00	35.00	38.50	24.50	42.00
Sept.	8.81	8.31¾	12.50	17.85	14.00	14.00	14.50	14.50	33.00	35.00	38.50	31.13	42.00
Oct.	8.58	9.21¾	12.50	18.31¼	14.00	14.00	14.50	14.50	33.00	38.75	33.62	32.00	42.00
Nov.	8.62½	11.12½	12.50	16.43¾	14.00	16.50	15.50	21.25	33.00	38.50	32.00	32.00	45.20
Dec.	8.63	13.75	12.72½	14.60	14.00	16.50	14.50	24.88¾	33.00	38.50	32.00	32.00	50.00
Average	9.03	8.73¼	12.97¼	15.87	14.60	14.42	15.00	15.91	32.01	34.90	37.01	27.66	42.31

Asiatic antimony. New York, quoted until the end of March, 1942.

* Price unchanged at 16.50¢ during 1940 and 1941.

† Price unchanged at 14.50¢ from 1943 through 1945.

U. S. ANTIMONY PRODUCTION

Short Tons, Ore and Concentrates

	Antimony Content	Average % Sb
1932	419	48.1
1933	567	51.1
1934	404	48.0
1935	559	18.5
1936	755	19.5
1937	1,286	29.1
1938	650	23.1
1939	393	12.4
1940	494	44.0
1941	1,214	35.1
1942	2,944	42.2
1943	5,556	33.1
1944	4,735	38.1
1945	1,830	12.9
1946	2,508	17.9
1947	5,316	29.6
1948	6,489	40.0
1949	1,636	31.1
1950	2,600	...

Source: U. S. Bureau of Mines

WORLD PRODUCTION OF NICKEL, SINCE 1942

Metric Tons, Nickel Content of Ore, Minor Producing Nations in Total

Country	1942	1943	1944	1945	1946	1947	1948	1949	1950
Burma	129,369	130,642	124,555	111,189	87,148	107,616	(1)	(1)	(1)
Canada	(1)	2,430	4,679	10,900	11,241	2,014	(1)	(1)	(1)
Cuba	1,630	8,970	313	900	622	(1)	(1)	(1)	(1)
Germany	577	951	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Greece	706	495	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Indonesia	1,200	1,200	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Japan	1,282	1,613	1,720	650	(1)	(1)	(1)	(1)	(1)
New Caledonia	9,415	7,374	8,115	4,328	2,779	3,345	4,882	3,371	6,300
Norway	911	577	529	516	55	(1)	(1)	(1)	(1)
Sweden	377	702	698	390	(1)	(1)	(1)	(1)	(1)
South Africa	449	343	481	499	497	529	458	618	843
U.S.S.R. ³	(1)	11,160	(1)	13,400	20,000	25,000	25,000	25,000	25,000
United States ⁴	555	582	896	1,048	319	588	801	717	828
Total (estimate)....	158,000	167,000	157,000	145,000	123,000	139,000	150,000	146,000	145,000

¹ Data not available; estimate included in total.

² Data cover 9 months ended Mar. 31, 1942.

³ Estimate.

⁴ Byproduct in electrolytic refining of copper. In 1944 and 1945 includes also production from ore.

Source: U. S. Bureau of Mines

U. S. NICKEL PRODUCTION

Short Tons, Primary and Secondary

	Primary	Secondary
1930	308	2,900
1931	373	2,070
1932	195	1,480
1933	126	1,850
1934	157	1,850
1935	180	1,950
1936	107	1,985
1937	219	2,400
1938	416	2,300
1939	394	2,920
1940	554	4,192
1941	680	5,315
1942	612	4,142
1943	642	6,917
1944	988	4,321
1945	1,155	6,483
1946	352	8,248
1947	646	9,541
1948	883	8,850
1949	790	5,680
1950	912	8,795

Source: U. S. Bureau of Mines

NICKEL IMPORTED INTO THE UNITED STATES

Short Tons, Nickel Imported for Consumption, Since 1926

	Ore and Matte	Pigs, Ingots, Shot, Bars, Rods, Tubes, etc.	Oxide	Nickel Silver	Gross Weight	Nickel Content*
1926	7,318	14,704	743	3	22,768	19,300
1927	5,372	14,610	507	8	20,497	17,900
1928	9,295	24,589	872	13	34,738	30,300
1929	14,491	32,355	1,638	7	48,488	41,500
1930	10,297	19,162	677	8	30,143	25,300
1931	5,815	11,817	182	5	17,769	15,100
1932	2,959	7,512	344	1	10,816	9,400
1933	9,610	15,811	1,010	...	26,430	21,900
1934	5,923	22,900	475	...	29,298	21,000
1935	7,962	29,429	456	...	37,848	34,200
1936	11,597	40,269	1,275	...	53,141	47,600
1937	12,543	40,615	1,022	...	54,180	47,884
1938	7,290	21,978	278	...	29,546	26,200
1939	14,217	49,763	816	...	64,795	58,200
1940	17,445	70,530	4,493	...	92,468	83,780
1941	39,946	74,993	9,189	1	124,130	106,182
1942	40,189	80,788	11,977	...	132,954	114,275
1943	43,486	92,579	5,184	...	141,249	122,492
1944	36,414	93,053	5,465	...	134,932	118,293
1945	25,039	78,402	19,087	...	122,528	107,433
1946	19,046	71,163	14,521	5	104,734	92,500
1947	14,636	58,687	15,074	11	88,408	80,718
1948	13,854	71,567	21,514	4	106,939	96,580
1949	11,128	72,348	12,242	...	97,159	81,471
1950	11,135	69,169	16,306	31	96,641	81,553

* Estimate by Bureau of Mines.

Source: U. S. Bureau of Mines

U. S. NICKEL CONSUMPTION

Short Tons, Excludes Scrap Recovery

	1948	1949	1950	1951†
Stainless steel	18,244	11,909	21,016	12,610
Alloy steel	21,782	13,474	17,777	9,948
Cast iron	4,216	3,396	4,881	1,302
Nonferrous alloys*	28,039	18,971	28,139	16,747
High temperature and resistance alloys	6,168	4,054	5,599	4,387
Anodes	14,213	13,810	17,424	2,552
Plating salts	609	724	736	145
Catalysts	595	497	1,188	433
Ceramics	185	149	302	70
Magnets	...	...	...	423
Other	1,457	1,340	1,858	1,015
Total	93,558	68,328	99,022	80,189

* Includes copper-nickel alloys, nickel silver, brass, bronze, beryllium, magnesium and aluminum alloys; and Monel, Inconel and malleable nickel.

† Eight months. Source: U. S. Bureau of Mines

ELECTROLYTIC NICKEL

Cents Per Pound, New York, Duty Paid

1929 to Nov. 24, 1946	35.00
Nov. 25, 1946 to Dec. 31, 1947	37.87
Jan. 1, 1948 to July 21, 1948	36.98
July 22, 1948 to Dec. 31, 1948	36.98
Jan. 1, 1949 to Aug. 31, 1949	42.93
Sept. 1, 1949 to May 31, 1950	42.97
June 1, 1950 to Dec. 31, 1950	51.22
Dec. 13, 1950 to June 1, 1951	53.55
June 2, 1951 to Dec. 31, 1951	59.58

Cobalt Production Consumption and Prices ... Monthly New York Lead and Tin Prices.

NONFERROUS

STRAITS TIN, PROMPT PRICE

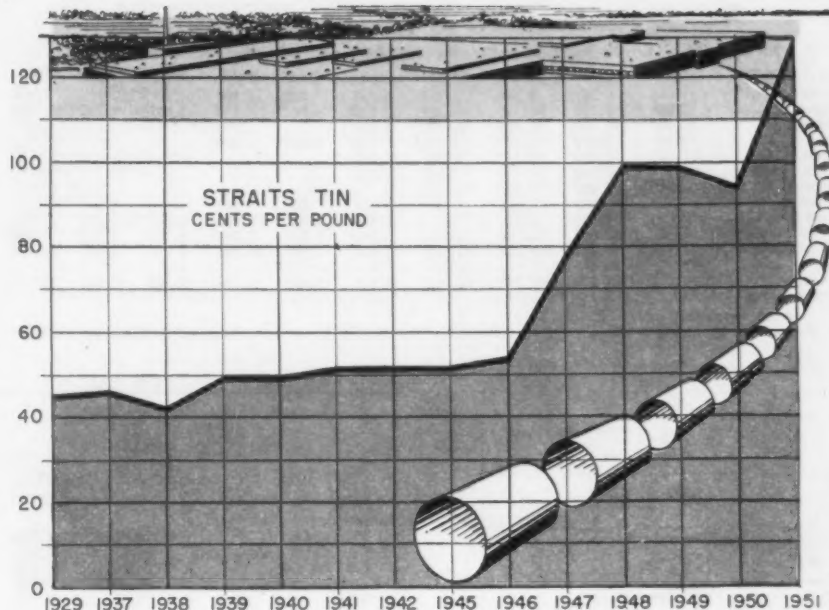
Cents Per Pound, at New York

	1936	1938	1939	1940	1941
Jan.	47.23	41.54	40.39	46.73	50.16
Feb.	47.94	41.23	45.64	45.85	51.41
Mar.	48.00	41.16	46.17	47.07	52.07
Apr.	48.97	38.41	47.16	46.96	52.03
May	46.31	38.83	49.00	51.51	52.18
June	42.24	40.36	48.81	54.64	52.68
July	42.96	43.38	48.53	51.81	53.41
Aug.	42.57	43.26	48.80	51.21	52.45
Sept.	44.77	43.40	Nom.	50.30	52.00
Oct.	44.95	45.25	55.68	51.50	52.00
Nov.	51.30	48.29	52.65	50.57	52.00
Dec.	51.85	46.21	51.40	50.11	52.00

Average 46.42 42.28 49.11 49.84 52.03

	1946	1947	1948	1949	1950	1951
Jan.	52.00	70.00	94.00	11.03	75.75	\$1.72
Feb.	52.00	70.00	94.00	11.03	74.50	\$1.83
Mar.	52.00	70.00	94.00	11.03	75.62	\$1.45
Apr.	52.00	80.00	94.00	11.03	76.38	\$1.46
May	52.00	80.00	94.00	11.03	77.50	\$1.40
June	52.00	80.00	11.03	11.03	77.70	\$1.18
July	52.00	80.00	11.03	11.03	89.88	\$1.06
Aug.	52.00	80.00	11.03	11.03	11.02	\$1.03
Sept.	52.00	80.00	11.03	11.02	11.01	\$1.03
Oct.	52.00	80.00	11.03	95.49	11.13	\$1.03
Nov.	61.00	80.00	11.03	90.11	11.38	\$1.03
Dec.	70.00	85.38	11.03	79.06	11.45	\$1.03

Average 54.00 77.95 99.25 99.22 95.53 \$1.27



WORLD PRODUCTION OF COBALT, SINCE 1941

Metric Tons of Cobalt Contained in Mine Production of Ores

Country	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Australia	13	14	15	9	9	10	9	10	9	10
Belgian Congo	2,258	1,656	2,061	1,877	2,800	2,150	3,563	4,322	4,350	5,148
Bolivia (Exports)	2	(3)	(3)							(2)
Burma	73	38	80	18	40	34	260	701	281	284
Canada	119	(3)	3	5	1					(2)
Chile	2	(3)	3	5	1					(2)
Finland	(2)	98	79	86	84	101	80	(2)	(2)	(2)
Italy	81	89	27	7	6			(3)	(3)	(2)
Japan	(3)	1	3	15	11	7	6	(3)		
Morocco, French	65	3	216	243	98	188	212	221	209	390
Northern Rhodesia	650	914	943	978	874	552	420	367	402	670
Sweden					9				(2)	(2)
United States (Shipments)	237	300	346	253	581	230	307	263	308	299

Total (Estimate) 4,000 3,500 4,200 3,900 4,700 3,500 5,000 6,100 5,900 7,100

In addition to countries listed, Brazil, China, Germany, and Spain produce cobalt, but production data are not available. Estimate included in total.

¹Excludes cobalt recovered by Mond Nickel Co. at Clydach, Wales, from nickel copper ores of Sudbury, Ont. district.

²Data not available; estimate included in total.

³Less than 1 ton.

⁴Year ended June 30 of year stated.

Source: Bureau of Mines

CONSUMPTION OF COBALT IN UNITED STATES

Pounds of Cobalt Contained, Broken Down According to Use

	1947	1948	1949	1950
Metallic:				
High-Speed Steel	223,148	289,391	283,496	235,227
Magnet Steel	121,223	165,698	42,965	37,552
Permanent Magnet Alloys	894,924	1,186,673	1,194,920	2,834,040
Other Steel	87,719	132,803	162,638	252,885
Cast Cobalt-Chromium-Tungsten-Molybdenum Alloys	941,087	1,196,608	1,238,083	2,226,199
Alloy Hard-Facing Rods and Materials	71,545	116,313	82,965	260,371
Cemented Carbides	51,917	85,314	118,522	138,935
Other	99,476	115,255	116,344	208,574
Total Metallic	2,491,030	3,288,055	3,239,933	6,191,783

Nonmetallic (Exclusive of Salts and Driers):				
Ground-Coat Frit	607,316	613,745	424,051	683,358
Pigments	207,926	232,725	189,606	262,441
Other	51,439	66,699	84,336	43,826
Total Nonmetallic	866,683	913,169	698,993	989,625

Salts and Driers: Lacquers, Varnishes, Paints, Inks, Pigments, Enamels, Glazes, Feed, Electroplating, etc. (Estimate)	797,000	818,000	765,000	1,102,000
Grand Total	4,154,722	5,019,224	4,701,926	8,283,408

Source: Bureau of Mines

COBALT, 97 TO 99 PCT.

Per Pound, 550 lb Lots Since 1947

1940 to June 30, 1947 ¹	\$1.50
July 1, 1947 to March 31, 1949	1.85
April 1, 1949 to December 31, 1950	1.80
January 2, 1951 to October 1, 1951	2.10
October 2, 1951 to December 31, 1951	2.40

¹ 100 lb lots.

A list of trade associations and technical societies in nonferrous and other fields begins on p. 478.

LEAD PRICE, COMMON GRADE

Cents Per Pound, at New York

	1936	1938	1939	1940	1941
Jan.	4.50	4.87	4.83	5.47	5.50
Feb.	4.51	4.83	4.80	5.08	5.60
Mar.	4.60	4.50	4.82	5.19	5.77
Apr.	4.60	4.50	4.78	5.07	5.85
May	4.60	4.40	4.75	5.02	5.85
June	4.60	4.15	4.80	5.00	5.85
July	4.60	4.88	4.85	5.00	5.85
Aug.	4.50	4.90	5.04	4.85	5.85
Sept.	4.60	5.00	5.45	4.93	5.85
Oct.	4.63	5.10	5.50	5.31	5.85
Nov.	5.11	5.09	5.50	5.73	5.85
Dec.	5.55	4.84	5.50	5.50	5.85

Average 4.71 4.74 5.05 5.18 5.79

	1946	1947	1948	1949	1950	1951
Jan.	6.50	13.00	15.00	21.50	12.00	17.00
Feb.	6.50	13.25	15.00	21.50	12.00	17.00
Mar.	6.50	15.00	15.00	18.96	10.96	17.00
Apr.	6.50	15.00	17.21	15.15	10.63	17.00
May	6.50	15.00	17.50	13.72	11.72	17.00
June	8.18	15.00	17.50	12.00	11.81	17.00
July	9.18	15.00	17.80	13.56	11.65	17.00
Aug.	8.25	15.00	19.50	14.99	12.93	17.00
Sept.	8.25	15.00	19.50	15.05	15.80	17.00
Oct.	8.25	15.00	19.50	13.42	16.00	18.93
Nov.	10.41	15.00	21.50	12.52	17.00	19.00
Dec.	12.20	15.00	21.50	12.00	17.00	19.00

Average 8.10 14.69 18.04 15.37 13.29 17.49

NONFERROUS

Magnesium production and consumption . . .
Imports and consumption of zinc in the U. S.

WORLD PRODUCTION OF MAGNESIUM SINCE 1941

Metric Tons, Production or Estimates for Minor Producing Nations in Total										
Country	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Canada	5	367	3,245	4,799	3,338	145	136			1,608
France	1,989	1,334	1,542	703	279	707	800	1,507	700 ²	445
Germany	24,000	30,000	32,400	33,600	4,225			17		
Italy	1,857	2,379	2,000 ²	3,000 ²	400 ²	1,000 ²	600 ²			
Japan	2,575	2,020	2,777	2,904	1,020					
Korea	263	240	532	1,628	1,014					
Norway	100	2,000	2,000	2,000						
Switzerland	700	1,500	1,500	1,000	500	300	500 ²			
U.S.S.R. ²	4,000	5,000	5,000	5,000	2,170	3,000	4,000	5,000	5,000	
United Kingdom	9,380	14,885	19,096	13,094	6,900 ¹	1,700 ¹	2,500 ¹	3,500	5,100 ¹	4,816 ¹
United States	14,782	44,418	166,544	142,518	29,748	4,823	11,198	9,075	10,521	14,267
Total	59,825	104,876	237,760	211,182	49,815	11,675	19,734	19,300	21,500	21,135

¹ Includes secondary.

² Estimated by Bureau of Mines.

Source: U. S. Bureau of Mines

MAGNESIUM OUTPUT AND USE

Includes Secondary, Short Tons

	1950	1951
Primary ingot produced	15,750	40,000
Primary ingot sold and used by producer:		
For magnesium alloys	12,500	29,800
For aluminum alloys and other non-magnesium use	8,000	11,000
Total sold and used	20,500	30,800
Cast and wrought products shipped	14,000	30,300
Metals for cast and wrought products	15,500	34,000
Secondary magnesium:		
Used in magnesium alloys	3,000	6,300
Used in aluminum and non-magnesium industries	3,000	1,700
Total secondary used	6,000	8,000

Total consumption primary & secondary 26,500 47,500

Source: Estimated by Magnesium Assn.

SLAB ZINC CONSUMPTION

Short Tons, by Industry and Product

Industry and Product ¹	1949	1950
Galvanizing: ²		
Sheet and strip	148,923	188,406
Wire and wire rope	39,231	47,317
Tube and pipe	78,030	81,877
Fittings	11,487	15,948
Other	75,209	99,138
Total	350,880	441,686
Brass products:		
Sheet, strip, and plate	43,157	66,737
Rod and wire	23,651	43,413
Tube	12,816	17,385
Castings and billets	2,620	4,170
Copper-base ingots	2,701	4,061
Other copper-base products	589	1,587
Total	85,534	139,373
Zinc-base alloy:		
Die castings	199,665	285,022
Alloy dies and rods	2,024	2,929
Slush and sand castings	492	1,576
Total	202,181	289,527
Rolled zinc	55,200	68,444
Zinc oxide	10,292	18,187
Other uses:		
Wet batteries	1,359	1,527
Desilverizing lead	2,448	2,947
Light-metal alloys	1,060	1,356
Other ³	2,887	4,067
Total	7,754	9,917
Total: All uses	4711,841	4967,134

¹ Based on a canvass of 588 plants.

² Includes zinc used in electrogalvanizing, but excludes sherardizing.

³ Includes zinc used in making zinc dust, bronze powder, alloys, chemicals, castings and miscellaneous uses not elsewhere mentioned.

⁴ Includes 2,394 tons of remelt zinc in 1949 and 3,035 tons in 1950.

Source: Bureau of Mines

ZINC IMPORTS INTO U. S.

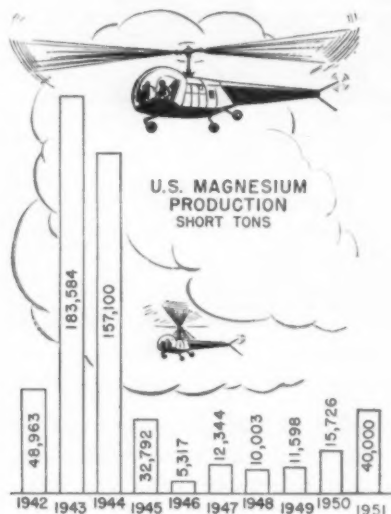
Short Tons, Imports for Consumption

	Ores, Concentrates (Zn content)	Blocks, Pigs, Slabs	Old Dress, Skimmings
1929		226	
1930		281	
1931		274	
1932		310	
1933	2,133*	1,890	
1934	14,277*	1,725	
1935	10,520*	4,444	29
1936	172*	11,660	16
1937	8,812*	37,208	678
1938	4,860	7,230	96
1939	33,503	30,960	209
1940	44,637	10,146	829
1941	154,520	40,288	494
1942	283,167	36,352	3,357
1943	516,646	56,155	8,146
1944	415,004	63,626	8,663
1945	330,397	96,710	7,331
1946	166,885	104,015	4,137
1947	194,822	72,063	5,105
1948	133,814	92,495	10,273
1949	109,535	125,564	3,732
1950	237,061	155,304	2,834
1951†	149,949	47,388	9,678

* Includes entries under bond.

† Six months.

Source: Bureau of Mines, Department of Commerce, and American Bureau of Metal Statistics



MAGNESIUM CONSUMPTION

Short Tons, Primary Metal Only

Product	1948	1949	1950
Structural products:			
Castings:			
Sand	1,930	3,068	3,090
Die	213	127	242
Permanent mold	12	44	573
Sheet	1,122	2,155	3,357
Extrusions	2,529	3,364	3,400
Forgings	103	200	104
Total structural	5,909	8,978	10,766
Other products:			
Powder			56
Aluminum alloys	2,324	1,759	3,722
Other alloys	43	39	255
Scavenger and deoxidizer	418	404	473
Chemical	407	224	373
Cathodic protection	367	235	1,837
Other ¹	193	308	469
Total other products	3,752	2,969	7,285
Grand Total	9,661	11,947	18,051

¹ Includes primary metal consumed in making secondary alloy.

Source: Bureau of Mines

U. S. PRODUCTION OF PRIMARY MAGNESIUM

Short Tons, Excludes Crystal Equivalent of Mg Content of Fire Bombs in 1943, 1944

Month	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951
January	2,512	10,300	20,056	3,816	98	1,398	863	968	1,002	1,876
February	2,337	10,666	19,537	2,958	48	1,232	830	884	913	1,709
March	2,591	13,008	19,571	3,297	10	1,472	867	888	948	1,885
April	2,506	13,558	17,986	3,174		1,153	801	858	957	2,043
May	2,635	15,093	16,217	3,171		926	797	867	972	2,194
June	2,631	15,077	13,750	3,404	241	848	796	850	1,175	2,512
July	3,299	16,504	14,134	4,586	692	905	782	885	1,132	2,986
August	3,426	17,160	11,561	4,500	888	849	869	970	1,400	3,419
September	4,120	16,199	8,296	2,063	886	886	819	974	1,835	4,195
October	5,838	18,011	7,370	1,017	1,000	912	873	941	1,090	5,500*
November	7,953	18,374	5,301	715	558	870	814	969	1,760	5,500*
December	9,115	19,554	3,321	101	795	893	932	1,004	1,942	5,900*
Total	48,963	183,584	157,100	32,792	5,317	12,344	10,003	11,598	15,726	40,000*

Producers' reports to WPB, Jan. 1942 to Aug. 1945, thereafter to Bureau of Mines and Magnesium Assn.

* Estimate.

Magnesium prices and scrap recovery . . .
Zinc prices and exports . . . Production,
prices, imports and exports of cadmium.

NONFERROUS

MAGNESIUM, 99.8 PCT PLUS

Cents Per Pound, at Freeport, Tex.

1929.....06.00	1937.....30.00	1945.....20.50
1930.....48.00	1938.....30.00	1946.....20.50
1931.....34.00	1939.....27.00	1947.....20.50
1932.....29.00	1940.....27.00	1948.....20.50
1933.....28.00	1941.....27.00	1949.....20.50
1934.....26.00	1942.....22.50	1950.....22.02
1935.....30.00	1943.....20.50	1951.....24.50
1936.....30.00	1944.....20.50	

RECOVERY OF SECONDARY MAGNESIUM IN U. S.

Short Tons, Broken Down by Form of Recovery, Since 1943

Form of Recovery	1943	1944	1945	1946	1947	1948	1949	1950
Magnesium-Alloy Ingot ¹ (Gross Weight)	11,009	13,379	7,350	2,506	5,138	4,713	4,249	3,249
Magnesium-Alloy Castings (Gross Weight)	327	235	496	1,145	1,377	1,301	681	2,504
Magnesium-Alloy Shapes			864	138	85	1	96	281
In Aluminum Alloys	34	23	274	1,218	1,883	998	294	810
In Zinc Alloys	1	5	3	4	3	6	4	57
In Other Alloys			10	2				
Chemical and Incendiary Uses	33	541	241	106	199	84	83	95
Cathodic Protection					818	450	555	311
	11,404	14,185	9,247	5,117	9,503	7,553	5,962	7,307

¹ Figures include secondary magnesium incorporated in primary magnesium ingot. Source: U. S. Bureau of Mines

ZINC EXPORTS FROM U. S.

Short Tons, Ore and Manufactures

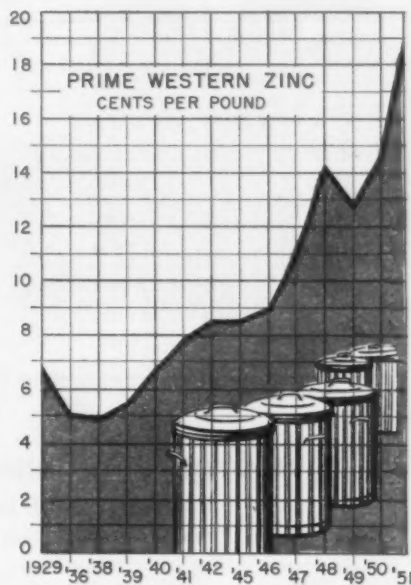
	Ore, Concentrat s, Dross	Slabs, Plates, Blocks	Sheet, Strip etc.	Dust
1929.....	3,561	14,411	5,285	1,256
1930.....	1,162	4,633	3,888	1,177
1931.....	395	643	2,759	1,400
1932.....	178	6,471	3,010	1,378
1933.....	809	1,145	3,189	1,569
1934.....	3,452	5,105	3,462	1,858
1935.....	461	1,617	4,813	1,813
1936.....	245	37	4,483	1,793
1937.....	314	249	5,813	2,145
1938.....	135	(1)	5,738	2,253
1939.....	303	4,515	6,708	2,384
1940.....	448	79,091	7,490	3,044
1941.....		89,369	5,246	2,901
1942.....		133,981	4,767	1,772
1943.....		87,439	3,167	5,859
1944.....		21,576	4,020	295
1945.....		7,782	6,235	330
1946.....	89	37,431	13,846	366
1947.....	1,404	106,659	10,899	1,648
1948.....	3,517	65,537	7,344	891
1949.....	4,495	58,709	7,456	690
1950.....	7,352	12,917	4,810	506
1951*.....	2,351	22,211	3,693	477

* Nine months. (1) Pigs and slabs not shown separately; included with sheets, strip, etc.
Source: Bureau of Mines, Department of Commerce, and American Bureau of Metal Statistics

PRIME WESTERN ZINC PRICE

Cents Per Pound, at New York

	1936	1938	1939	1940	1941
Jan.....	5.22	5.35	4.89	6.03	7.65
Feb.....	5.23	5.17	4.89	5.93	7.65
Mar.....	5.27	4.77	4.89	6.14	7.65
Apr.....	5.27	4.53	4.89	6.14	7.65
May.....	5.27	4.43	4.89	6.20	7.65
June.....	5.26	4.53	4.89	6.63	7.65
July.....	5.16	5.14	4.91	6.84	7.65
Aug.....	5.17	5.14	5.11	6.79	7.65
Sept.....	5.22	5.24	6.61	7.33	7.65
Oct.....	5.22	5.40	6.89	7.84	8.65
Nov.....	5.35	5.12	6.89	7.84	8.65
Dec.....	5.64	4.89	6.46	7.65	8.65
Average	5.27	4.98	5.51	6.73	7.98
Jan.....	8.65	11.005	11.69	18.18	9.40
Feb.....	8.65	11.005	12.61	18.20	10.47
Mar.....	8.66	11.005	12.61	17.76	10.66
Apr.....	8.65	11.005	12.61	14.76	11.41
May.....	8.65	11.005	12.64	12.58	12.71
June.....	8.65	11.005	12.65	10.27	15.49
July.....	8.69	11.005	13.09	10.06	15.72
Aug.....	8.69	11.005	15.65	10.70	15.72
Sept.....	8.69	11.005	15.65	10.77	17.82
Oct.....	9.28	11.03	15.74	10.04	18.22
Nov.....	10.86	11.06	17.27	10.46	18.22
Dec.....	10.94	11.06	18.15	10.47	18.22
Average	9.09	11.02	14.20	12.85	14.51



CADMIUM PRICES, STICKS, BARS

Dollars Per Pound, 1 to 5-Ton Lots

June 3, 1943 to July 17, 1946.....	\$0.90
July 18, 1946 to Nov. 20, 1946.....	1.25
Nov. 21, 1946 to Dec. 4, 1946.....	1.37½
Dec. 5, 1946 to Feb. 19, 1947.....	1.50
Feb. 20, 1947 to Aug. 11, 1948.....	1.75
Aug. 12, 1948 to Nov. 17, 1948.....	1.90
Nov. 18, 1948 to June 14, 1950.....	2.00
June 15, 1950 to Sept. 10, 1950.....	2.15
Sept. 11, 1950 to Nov. 30, 1950.....	2.40
Dec. 1, 1950 to Dec. 31, 1951.....	2.55

U. S. CADMIUM PRODUCTION

Short Tons of Contained Cadmium

	Metallic Cadmium	Compounds	Secondary Recovery
1932.....	400	130	...
1933.....	1,138	201	...
1934.....	1,389	253	...
1935.....	1,739	254	...
1936.....	1,817	313	...
1937.....	2,133	414	...
1938.....	2,039	218	...
1939.....	2,206	340	...
1940.....	2,961	423	114
1941.....	3,489	148	100
1942.....	3,662	24	158
1943.....	4,108	35	31
1944.....	4,227	163	53
1945.....	3,966	226	36
1946.....	3,100	135	178
1947.....	4,004	250	52
1948.....	3,791	96	61
1949.....	4,012	175	87
1950.....	4,433	170	257*

Source: U. S. Bureau of Mines
* Includes compounds made from secondary metal.

See Section 5 for data on various nonferrous castings and prices and production of nonferrous powders. . . . It also contains an analysis of jet engine alloys.

U. S. CADMIUM EXPORTS

Gross Weight in Pounds, 1949-1951

Kind	1949	1950	1951*
Dross, flue dust, residues, scrap	500		7,921
Metal	566,135	352,927	215,411
Alloys	3,000	9,000	...
Total	569,635	361,927	...

* Seven Months.

Source: Bureau of Mines

CADMIUM IMPORTED INTO THE UNITED STATES

Metal in Pounds, Flue Dust and Total 000 Omitted*, Imports for Consumption

	1944	1945	1946	1947	1948	1949	1950	1951 (7 months)
Metallic Cadmium								
Australia.....						7,210	7,918	9,827
Belgian Congo.....	53,082	25,798	6,700					
Belgium and Luxembourg.....			2,240	2,000		48,503	143,825	82,870
Canada.....		672	3,568	14,612	6,300	68,140	237,494	3,336
Italy.....	8,656						4,400	
Japan.....						31,640	194,745	19,908
Peru.....	4,689	2,254	4,907	3,658	3,500	1,711	3,010	
Switzerland.....				2				
United Kingdom.....				20			1,008	
Total.....	66,627	28,724	17,415	20,292	9,809	157,204	592,400	84,641
Flue Dust*								
Australia.....					621			
Brazil.....						2,906		
Mexico.....	1,689	2,193	1,609	2,356	1,827	1,786	1,507	631
Netherlands.....			44					
Total Metallic Cadmium and Flue Dust.....	1,756	2,221	1,670	2,376	2,458	4,849	2,099	716

Source: U. S. Dept. of Commerce

NONFERROUS

Molybdenum, vanadium and mercury output
... Scrap lead recovery ... Nonferrous
industry employment, hours and earnings.

WORLD PRODUCTION OF MOLYBDENUM, FROM 1941

Metric Tons of Ores and Concentrates, Molybdenum From Other Nations in Total¹

Country ¹	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Canada.....	47	43	178	509	226	184	207	79	.....	28
Chile.....	229	580	680	1,051	841	560	402	532	558	800
China: Manchuria ²	75	384	816	618	30	.....	.....	.....	.....	(3)
Finland.....	148	126	108	110	92	99	.....	.....	.....	.....
Japan.....	41	56	87	189	108	52	18	1	.....	13
Korea, South.....	122	217	291	394	54	.....	5	2	11	(3)
Mexico.....	522	855	1,138	717	468	818	136	.....	.....	.....
Norway.....	229	368	227	248	76	10	103	79	70	62
Peru.....	146	154	85	62	29	4	3	3	2	(3)
United States.....	18,309	25,829	27,972	17,545	13,972	8,264	12,268	12,114	10,219	12,918
Total.....	20,300	29,000	31,400	21,400	15,900	10,800	14,000	13,600	11,500	14,400

¹ Molybdenum is also produced in Greece, Rumania, Turkey, U. S. S. R., and Yugoslavia, but production data are not available.

² Exports to Japan proper. ³ Not available.

Source: U. S. Bureau of Mines

U. S. MOLYBDENUM OUTPUT

Short Tons of Contained Molybdenum

Year	Output	Year	Output
1926.....	687	1939.....	15,182
1927.....	1,150	1940.....	17,157
1928.....	1,714	1941.....	20,182
1929.....	2,011	1942.....	20,471
1930.....	1,862	1943.....	30,834
1931.....	1,567	1944.....	19,340
1932.....	1,216	1945.....	15,401
1933.....	2,841	1946.....	9,109
1934.....	4,681	1947.....	13,524
1935.....	5,756	1948.....	13,353
1936.....	8,593	1949.....	11,255
1937.....	14,718	1950.....	14,240
1938.....	16,648	1951 (First Half).....	9,791

Source: U. S. Bureau of Mines

WORLD PRODUCTION OF VANADIUM, SINCE 1940

Metric Tons, Total Excludes Russia, French Morocco and Spain, also Byproduct

Country	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Argentina.....	1	6	.....	.....	4	3	6	7	(1)	(1)	(1)
Mexico.....	32	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Rhodesia.....	368	342	388	426	254	219	68	96	173	153	.....
Peru.....	1,214	1,017	1,010	947	514	688	322	435	511	456	438
South-West Africa.....	428	269	453	577	385	420	430	282	187	165	295
U. S. (shipments) ³	981	1,140	2,014	2,534	1,600	1,344	577	961	(4)	(4)	(4)
Total ⁴	3,024	2,774	3,865	4,304	2,757	2,674	1,403	1,741	(4)	(4)	(4)

¹ Figure not available. ² Less than 1 ton. ³ Includes also vanadium recovered as a byproduct of phosphate-rock mining.

⁴ Bureau of Mines not at liberty to publish figure. ⁵ Total represents data only for countries shown in table.

Source: U. S. Bureau of Mines

U. S. MERCURY STATISTICS

Flasks of 76 Pounds, Imports General

	1949	1950
Production (Includes Scrap).....	11,315	6,440
Imports.....	96,918	60,564
Exports.....	577	447
Consumption.....	39,857	49,600
Average Price.....	\$79.46	\$81.26

Source: U. S. Bureau of Mines

RECOVERY OF SECONDARY LEAD IN THE U. S.

Short Tons of Metal, Showing Form of Recovery

Form of Recovery	1943	1944	1945	1946	1947	1948	1949	1950
As Metal:								
At Primary Plants.....	21,634	11,368	18,525	8,013	15,862	4,952	23,230	5,455
At Other Plants.....	36,688	43,678	42,598	65,691	95,843	126,951	129,396	123,858
In Antimonial Lead ¹	58,322	55,046	61,123	73,704	111,505	131,903	152,626	129,313
In Other Lead Alloys.....	176,078	180,818	194,079	193,684	265,935	243,552	172,742	225,640
In Copper-Base Alloys.....	76,474	68,271	77,051	94,853	103,799	102,603	78,894	107,635
In Tin-Base Alloys.....	28,625	26,667	30,346	30,101	30,137	21,449	7,440	18,695
	1,746	614	440	645	594	514	481	992
Total.....	341,243	331,416	363,039	392,787	511,970	500,071	412,183	482,275

¹ Includes lead recovered in secondary antimonial lead at primary plants.

Source: U. S. Bureau of Mines

EMPLOYMENT, HOURS, EARNINGS

Nonferrous Metal Finishing*

Production and Related Workers

	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)
1948.....	\$57.81	40.2	\$1.438	86.0
1949.....	58.05	38.7	1.500	70.6
1950.....	66.75	41.9	1.593	80.7
1951:				
Jan.....	67.98	40.9	1.662	87.1
Feb.....	68.30	40.8	1.674	86.8
Mar.....	68.21	40.7	1.676	85.9
Apr.....	68.08	40.6	1.677	84.9
May.....	67.91	40.4	1.681	81.9
June.....	69.37	40.9	1.696	83.1
July.....	69.01	40.5	1.704	79.7
Aug.....	67.40	40.0	1.685	78.6

* Rolling, drawing, and alloying.

Source: Bureau of Labor Statistics

EMPLOYMENT, HOURS, EARNINGS

Nonferrous Metal Manufacturing*

	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)
1948.....	\$58.22	41.0	\$1.420	46.8
1949.....	60.36	40.4	1.494	43.3
1950.....	63.71	41.0	1.554	45.4
1951:				
Jan.....	70.67	41.5	1.703	47.2
Feb.....	69.18	41.3	1.675	47.3
Mar.....	68.14	41.3	1.674	47.4
Apr.....	70.18	41.9	1.675	47.2
May.....	70.18	41.8	1.679	46.4
June.....	70.73	41.9	1.688	47.8
July.....	70.41	41.2	1.709	48.0
Aug.....	71.41	41.8	1.702	47.7

* Primary metal industries group, primary smelting and refining.

Source: Bureau of Labor Statistics

WORLD PRODUCTION OF MERCURY, SINCE 1942

Number of 76 Pound Flasks, Estimated Production of Other Nations Is in Total

Country ¹	1942	1943	1944	1945	1946	1947	1948	1949	1950
Algeria.....	121	146	165	328	340	348	381	102	(2)
Canada.....	13,630	22,240	9,882	.....	.....	.....	.....	.....	(2)
Chile.....	2,256	2,563	1,181	882	827	445	467	(2)	(2)
China.....	4,293	3,133	3,510	1,828	1,189	290	290	(2)	(2)
Czechoslovakia.....	(2)	(2)	(2)	(2)	(2)	768	800	(2)	(2)
Germany.....	493	3,480	3,480	(2)	(2)	(2)	(2)	(2)	(2)
Italy.....	75,921	58,004	28,704	25,410	50,822	53,984	38,233	44,000	63,346
Japan.....	5,197	6,706	7,096	3,139	1,361	1,619	1,689	2,461	1,312
Mexico.....	32,443	28,321	26,063	16,443	11,661	9,700	4,768	5,250	3,713
Peru.....	145	326	152	209	5	.....	.....	.....	(2)
Spain.....	72,288	47,758	34,349	40,694	41,801	55,608	22,684	32,289	50,000
Turkey.....	271	188	87	158	.....	98	(2)	.....	.....
Union of South Africa.....	579	1,189	1,192	852	764	.....	.....	.....	.....
United States.....	50,848	51,929	37,689	30,763	25,348	23,244	14,388	9,930	4,533
Total.....	265,000	236,000	183,000	131,000	144,000	184,000	102,000	112,000	136,000

¹ Mercury is also produced in Korea (Chosen) and U. S. S. R., but production data are not available; estimates included in the total. Totals include output or estimates for minor producing nations, including Australia, Austria, Bolivia, New Zealand, Rumania, Southern Rhodesia, Sweden, Tunisia and Yugoslavia.

² Data not available; estimates included in the total.

Source: U. S. Bureau of Mines

The Iron Age METAL INDUSTRY FACTS SECTION 3

RAW MATERIALS, SCRAP, ORE, COAL, FERROALLOYS

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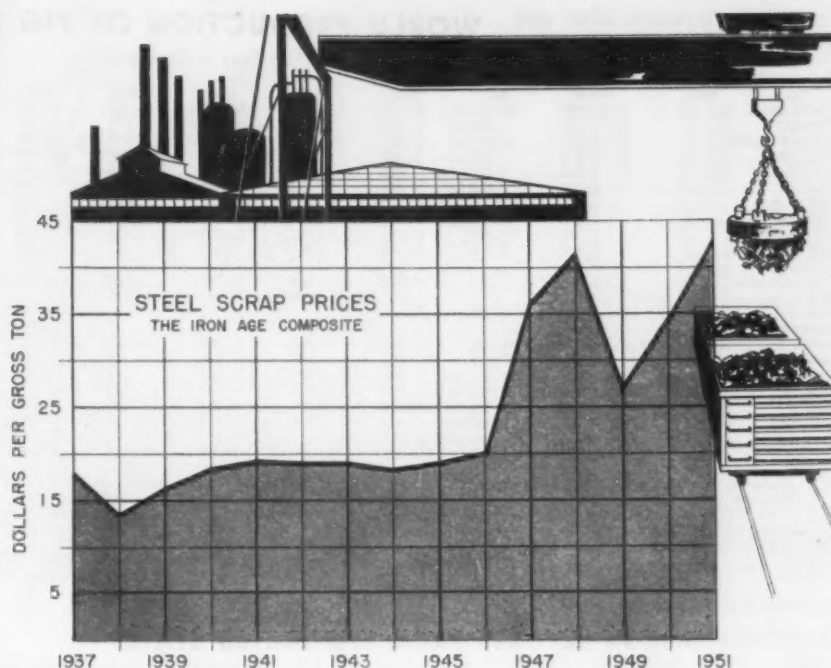
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Pig iron: World production, U. S. imports and exports . . . U. S. blast furnace capacity.

WORLD PRODUCTION OF PIG IRON

(Net Tons in Thousands)

	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951*
United States.....	47,399	58,687	60,903	62,770	62,866	54,819	46,515	60,117	61,912	54,206	64,810	75,000
Canada.....	1,446	1,708	2,156	1,930	2,012	1,876	1,525	2,152	2,335	2,367	2,491	2,777
United Kingdom.....	9,189	8,280	8,653	8,049	7,545	7,960	8,692	8,457	10,389	10,637	10,706	10,582
Belgium.....	1,976	1,572	1,398	1,801	790	802	2,393	3,109	4,346	4,130	4,072	5,291
Luxembourg.....	1,164	1,481	1,865	2,526	1,481	344	1,505	2,004	2,896	2,615	2,755	3,417
France.....	4,060	3,694	4,231	5,424	3,189	1,304	3,796	5,383	7,248	9,188	8,562	9,498
Netherlands.....	305	.....	.....	.....	.....	.....	128	180	487	478	500	555
Hungary.....	471	487	460	480	326	1	178	330	336	.....	.....	890*
Germany†.....	15,383	17,012	17,021	17,806	14,737	1,550	2,425	2,491	6,394	7,870	10,440	11,905
Saar.....	2,006	2,258	2,224	2,411	1,634	.....	271	721	1,252	1,743	1,854	2,579
Austria.....	.....	.....	.....	.....	.....	.....	64	308	679	924	873	1,018
Czechoslovakia.....	1,788	1,733	1,759	1,878	1,746	635	1,058	1,569	1,822	.....	.....	2,500*
Poland.....	.....	.....	.....	290	271	252	800	944	1,199	.....	.....	1,800*
Yugoslavia.....	92	83	.....	.....	.....	.....	.....	.....	.....	211	225	.....
Rumania.....	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Russia.....	18,500	14,300	7,700	11,100	16,800	10,140*	11,250*	12,450*	15,750*	18,960*	19,500*	24,300*
Italy.....	1,239	1,229	1,077	802	341	83	228	425	580	490	632	1,212
Spain.....	639	591	592	643	607	519	540	551	562	693	724	694
Sweden.....	868	814	837	874	941	839	771	779	881	948	855	926
Japan‡.....	4,422	5,268	5,475	5,089	3,434	556	202	391	922	1,767	2,557	3,197
Australia**.....	1,357	1,653	1,745	1,466	1,462	1,252	1,204	1,329	1,384	1,171	1,473	1,446
Total.....	110,455	118,847	118,095	125,121	120,171	83,132	83,541	103,687	121,354	118,368	122,904	160,100

* Includes ferroalloys made in the blast furnace.

Dots signify absence of statistics or estimates.

† Estimate.

‡ 1949, 1949, 1950, and 1951 figures do not include production in the Russian Zone. Saar and Austria are not included.

** Home islands, Korea and Manchuria in 1944 and previous years.

** Year ending June 30.

Source: American Iron and Steel Institute, Chambre Syndicale de la Siderurgie Francaise and Statistical Office of the United Nations

PIG IRON EXPORTS FROM THE UNITED STATES

Ranging from 1941 Through First 7 Months of 1951; in Short Tons

	1941	1942†	1943	1944	1945	1946	1947	1948	1949	1950
Argentina.....	.....	336	.....	431	5,659	4,772	125	.....	.....	.....
Belgium & Luxembourg.....	.....	.....	.....	.....	7,790	.....	29,262	.....	.....	.....
Canada.....	5,117	1,691	7,673	8,984	6,106	11,709	9,524	6,520	19,164	4,829
Chile.....	2,119	578	1,229	2,331	.....	.....	.....	.....	863	155
China.....	.....	.....	.....	.....	.....	12,155	.....	.....	.....	.....
Colombia.....	441	.....	148	2,887	.....	.....	.....	.....	242	401
Costa Rica.....	.....	.....	.....	.....	.....	.....	.....	.....	28	.....
Cuba.....	.....	.....	.....	.....	.....	.....	.....	.....	111	.....
Dominican Republic.....	.....	.....	.....	.....	.....	.....	.....	.....	182	140
Ecuador.....	.....	.....	.....	.....	.....	.....	.....	.....	129	.....
France.....	.....	.....	.....	.....	14,000	14,000	.....	.....	.....	.....
Greece.....	.....	.....	.....	.....	.....	.....	.....	1,690	46	.....
Italy.....	.....	.....	.....	.....	10,643	16,856	.....	.....	.....	.....
Korea.....	.....	.....	.....	.....	.....	.....	.....	8,346	.....	.....
Mexico.....	.....	.....	.....	.....	.....	.....	.....	2,280	650	.....
New Zealand.....	.....	.....	.....	.....	.....	.....	.....	175	112	.....
Nicaragua.....	.....	.....	.....	.....	.....	.....	.....	56	.....	.....
Paraguay.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....
Peru.....	.....	.....	.....	.....	.....	.....	.....	580	2	.....
Philippines.....	.....	.....	.....	.....	.....	.....	.....	223	205	.....
Sweden.....	.....	.....	.....	.....	22,068	24,082	.....	.....	.....	.....
Trinidad & Tobago.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
United Kingdom.....	555,339	105,495	121,534	132,001	1,524	.....	.....	.....	46,990	78
Uruguay.....	195	.....	2,557	1,202	3,078	3,366	.....	.....	235	.....
U.S.S.R.....	.....	430	3,729	4,036	.....	.....	.....	.....	.....	.....
Other Countries.....	15,322	3,125	7,685	9,664	23,180	12,044	1,290	512	.....	.....
Total.....	578,533	111,655	144,555	161,536	94,046	99,064	40,201	7,032	81,310	6,670

* Seven Months.

Source: Department of Commerce and AISI

U. S. IMPORTS OF PIG IRON

Ranging from 1941 Through First 7 Months of 1951; in Short Tons

	1941	1942†	1944	1945	1946	1947	1948	1949	1950	1951*
Netherlands.....	2,710	45,020	20,527	209,698	65,048
Belgium.....	32,809	15,688	7,220	12,395
Australia.....	3,367	336	.....	.....	.....	.....	26,901	19,599	.....	.....
Germany.....	24,558	2,382	190,710	210,137
Norway.....	9,482	23,920	145	1,025	1,810
Austria.....	281	18,594	5,145	50,566	23,274
France.....	17,876	340	33,509	33,509
India.....	500	.....	.....	.....	.....	16,100	23,078	6,400	31,498
Canada.....	300	49	5,778	21,433	1,267	1,747	5,729	12,270	142,487	67,183
Italy.....	5,001	.....	.....	110
United Kingdom.....	560	.....	.....	1,528	.....	.....	193	2,485	3,533
French Morocco.....	185	.....	.....	.....	.....	.....	.....	.....	.....
Mexico.....	11,248	.....	.....	.....	.....	.....
Other Countries.....	28	18,404	2,192	435	.....	107,776
Total.....	3,675	1,610	5,778	21,433	14,091	32,624	218,700	99,802	644,060	556,363

* Seven Months.

† No imports for 1942.

Source: U. S. Department of Commerce

BLAST FURNACES IN THE U. S.

Producing pig iron, ferroalloys*

Massachusetts.....	1	Texas.....	1
New York.....	16	Ohio.....	60
Pennsylvania.....	77	Indiana.....	23
Maryland.....	8	Illinois.....	22
Virginia.....	1	Michigan.....	6
West Virginia.....	4	Minnesota.....	2
Kentucky.....	3	Colorado.....	4
Tennessee.....	3	Utah.....	1
Alabama.....	20	California.....	2

Total..... 247

Capacity on tonnage basis, as of Jan. 1, 1949—71,497,540 net tons.

*As of Jan. 1, 1950

Source: American Iron & Steel Institute

BLAST FURNACE CAPACITY*

Net Ton Totals for Active Units

	Pig Iron	Ferroalloys	Charcoal Iron	Total
1939.....	55,162,374	1,060,416	103,040	56,325,830
1940.....	54,635,740	992,320	95,580	55,723,640
1941.....	56,522,370	980,660	106,500	57,609,530
1942.....	59,211,850	1,075,570	106,580	60,393,900
1943.....	62,859,330	967,000	107,200	63,933,530
1944.....	66,344,780	990,300	56,190	67,391,270
1945.....	66,256,810	992,600	64,480	67,313,890
1946.....	66,311,410	996,700	32,480	67,340,590
1947.....	64,674,020	1,002,700	32,480	65,709,200
1948.....	66,301,610	1,097,000	40,320	67,438,930
1949.....	69,435,130	1,066,400	40,320	70,541,850
1950.....	70,348,920	1,108,300	40,320	71,497,540
1951.....	71,373,380	1,096,400	.....	72,471,780

* Capacities are for year beginning Jan. 1. Capacities of furnaces long idle not included.

Source: American Iron & Steel Institute

BLAST FURNACE MATERIALS

Net Tons Used in 1950 for pig iron

Iron Ore.....	112,156,949
Scrap.....	3,590,547
Mill Cinder, Scale, etc.....	7,140,657
Total.....	122,887,253

* Scrap used less scrap produced.

Source: American Iron & Steel Institute

Pig iron: U. S. production of pig iron . . .
Output by states . . . Canadian blast
furnace production and pig iron capacity.

RAW MATERIALS

CANADIAN STATISTICS

FIG IRON PRODUCTION Includes Ferroalloys, in Net Tons Pig Iron

	1949	1950	1951
January	183,074	180,432	201,066
February	172,724	157,200	193,227
March	202,130	174,944	220,603
April	180,740	185,250	211,112
May	202,148	195,893	218,889
June	194,255	198,482	213,184
July	175,381	194,016	210,263
August	180,115	201,830	203,186
September	188,438	198,415	212,485
October	188,020	205,811	215,000*
November	187,327	208,301	218,000*
December	172,002	198,169	215,000*
Total	2,164,352	2,300,732	2,529,135*

	1949	1950	1951
January	21,931	9,961	19,062
February	21,713	9,652	14,914
March	22,457	17,157	19,451
April	24,427	17,157	19,582
May	20,632	12,707	23,542
June	19,264	15,350	19,774
July	14,280	16,118	17,608
August	12,562	19,019	25,327
September	12,250	17,788	22,977
October	15,458	16,959	22,000*
November	14,758	16,920	22,000*
December	11,633	15,341	22,000*
Total	211,603	181,575	248,207*

* December output estimated.
Source: Dominion Bureau of Statistics

BLAST FURNACE PRODUCTION Net Tons

Year	Pig Iron	Ferroalloys	Total Pig Iron and Ferroalloys
1925	839,844	26,794	866,638
1926	826,003	64,305	890,308
1927	792,824	62,977	855,801
1928	1,162,254	50,267	1,212,521
1929	1,220,961	69,611	1,310,572
1930	835,639	73,049	908,688
1931	470,442	52,375	522,817
1932	161,425	17,100	178,525
1933	254,592	33,737	288,329
1934	455,789	37,055	492,844
1935	678,302	61,182	740,484
1936	789,618	67,679	857,297
1937	1,006,717	91,931	1,098,648
1938	789,710	59,720	849,430
1939	846,418	95,531	941,949
1940	1,309,161	151,661	1,460,822
1941	1,828,054	213,218	2,041,272
1942	1,975,015	213,636	2,188,651
1943	1,758,265	218,667	1,976,932
1944	1,852,626	182,428	2,035,054
1945	1,777,956	198,678	1,976,634
1946	1,403,758	118,995	1,522,753
1947	1,989,847	148,832	2,138,679
1948	2,120,909	280,659	2,401,568
1949	2,154,352	211,603	2,365,955
1950	2,309,732	181,575	2,491,307
1951*	2,529,135	248,207	2,777,342

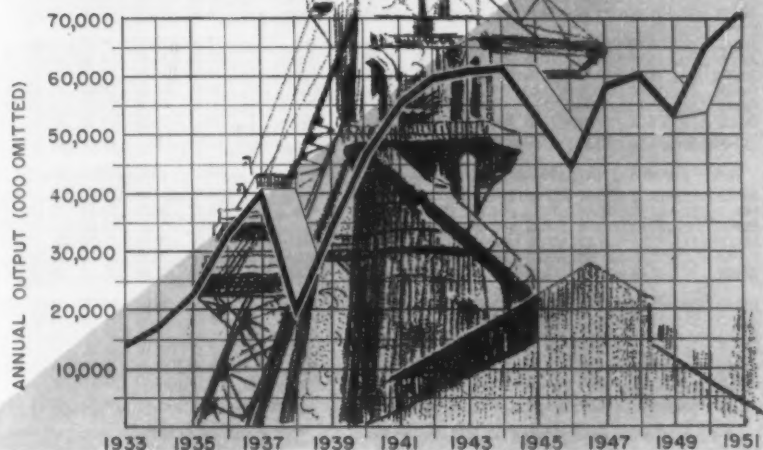
* December output estimated.
Source: Dominion Bureau of Statistics

FIG IRON CAPACITY, OUTPUT Excluding Ferroalloys, Net Tons

	Capacity	Production	Percent of Capacity
1937	1,450,875	1,006,717	69.3
1938	1,450,875	789,710	54.4
1939	1,450,875	846,418	58.3
1940	1,450,875	1,309,161	90.2
1941	1,815,875	1,828,054	101.2
1942	2,123,320	1,975,015	92.8
1943	2,756,160	1,758,265	63.7
1944	2,770,760	1,852,626	66.8
1945	2,770,760	1,777,956	64.1
1946	2,770,760	1,403,758	50.6
1947	2,745,760	1,989,847	72.4
1948	2,745,760	2,120,909	77.2
1949	2,745,760	2,154,352	78.4
1950	2,745,760	2,309,732	84.1
1951	3,025,000†	2,529,135*	83.6

† In the middle of August, 1951, capacity increased from 2,745,760 tons a year to 3,025,000 tons by new blast furnace of Dominion Foundries & Steel, Ltd. Percentage has been worked out using the two figures.
* December output estimated.

Source: Dominion Bureau of Statistics



UNITED STATES FIG IRON PRODUCTION

Blast Furnace, Thousands of Net Tons, Includes Ferroalloys, Not Charcoal Iron

	Jan.	Feb.	Mar.	April	May	June	First Half	July	Aug.	Sept.	Oct.	Nov.	Dec.	Second Half	Year
1910	2922	2685	2932	2782	2577	2537	16,535	2407	2360	2303	2344	2139	1991	13,544	30,079
1920	3377	3337	3781	3068	3344	3409	20,316	3435	3525	3504	3689	3287	3029	20,468	40,784
1921	2706	2169	1798	1336	1368	1193	10,559	969	1069	1104	1396	1585	1647	7,970	18,529
1922	1842	1826	2280	2321	2583	2644	13,496	2694	2034	2278	2956	3191	3457	16,610	30,106
1923	3617	3353	3947	3976	4332	4117	23,342	4119	3864	3501	3527	3241	3272	21,524	44,866
1924	3382	3441	3883	3622	2920	2269	19,526	1990	2114	2299	2774	2811	3318	15,315	34,841
1925	3774	3600	3992	3650	3283	2955	21,294	2984	3030	3052	3386	3366	3640	19,478	40,772
1926	3714	3274	3855	3864	3900	3623	22,230	3610	3586	3512	3734	3626	3461	21,529	43,759
1927	3477	3294	3901	3832	3798	3461	21,763	3305	3300	3108	3118	2986	3020	18,817	40,580
1928	3214	3248	3585	3567	3678	3452	20,744	3441	3514	3429	3774	3688	3774	21,635	42,379
1929	3585	3591	4160	4102	4366	4163	24,237	4239	4218	3918	4019	3563	3177	23,133	47,360
1930	3166	3180	3636	3564	3620	3286	20,452	2956	2627	2550	2425	2092	1886	14,718	35,168
1931	1920	1912	2276	2261	2233	1836	12,438	1639	1435	1309	1314	1235	1098	8,030	20,468
1932	1089	1080	1084	954	877	704	6,788	640	582	683	721	707	812	3,925	9,713
1933	637	621	607	699	993	1417	4,974	2007	2053	1705	1519	1215	1323	9,622	14,786
1934	1361	1416	1813	1934	2289	2162	10,974	1372	1181	1006	1065	1072	1181	6,847	17,821
1935	1684	1802	1983	1863	1934	1739	10,975	1702	1972	1990	2215	2315	2360	12,554	23,529
1936	2259	2042	2289	2693	2968	2896	15,151	2905	3037	3058	3301	3489	3489	18,141	34,292
1937	3597	3359	3875	3799	3961	3481	22,072	3919	4039	3819	3239	2246	1669	18,933	41,006
1938	1601	1454	1627	1541	1408	1189	6,818	1346	1673	1682	2298	2543	2478	12,218	21,038
1939	2436	2307	2682	2303	1924	2373	14,026	2639	2979	3224	4063	4167	4220	21,292	35,317
1940	4032	3311	3270	3137	3514	3819	21,063	4054	4238	4177	4464	4403	4548	25,866	46,949
1941	4864	4198	4704	4334	4800	4553	27,053	4771	4791	4717	4856	4703	5012	28,850	55,903
1942	4971	4500	5055	4995	5073	4935	29,430	5051	5009	4937	5237	4966	5201	30,552	59,882
1943	5137	4796	5314	5035	5178	4838	30,343	5023	5316	5226	5324	5096	5213	31,434	61,777
1944	5293	5091	5442	5251	5351	5064	31,482	5167	5210	4988	5200	4904	4998	30,457	61,939
1945	4945	4863	5228	4786	5016	4605	29,142	4801	4249	4227	3386	4026	4323	25,025	54,167
1946	2848	1148	4424	3514	2275	3682	17,807	4708	4898	4687	4815	4435	3992	27,672	45,379
1947	5071	4550	5123	4830	5081	4810	29,480	4565	4917	4801	5228	5015	5177	29,723	59,209
1948	5195	4838	5019	3940	5077	4990	26,961	4899	5254	5207	5820	5399	5955	31,888	60,849
1949	5725	5223	5820	5531	5517	4819	32,642	4173	4477	4350	612	2721	5231	21,564	54,206
1950	5294	4173	4601	5577	5555	5633	31,133	5879	5770	5697	5924	5331	5628	34,229	64,810
1951	5829	5118	5946	5829	6118	5920	34,751	6010	6005	5827	6132	*6100	*6100	*42,179	*76,930

* Preliminary figure, subject to revision.

Source: 1901 to 1942, THE IRON AGE; October 1942 to 1951, AISI

FIG IRON PRODUCTION BY STATES

In U. S., Short Tons in Thousands, Includes 17 Major Producing States

	1946	1947	1948	1949	1950
Pennsylvania	13,251	17,563	17,742	15,037	18,239
Ohio	9,534	12,317	12,471	10,640	12,510
Indiana	6,429	6,401	6,493	5,991	7,018
Illinois	4,357	5,600	5,513	4,913	6,024
Maryland, West Virginia	2,949	3,662	4,240	4,363	5,203
Alabama	3,149	3,929	4,013	3,541	4,301
Massachusetts, New York	2,780	3,669	3,675	2,154	2,653
Colorado, Utah, California	1,361	2,245	2,379	2,102	2,829
Michigan, Minnesota	1,893	1,824	2,101	2,002	2,829
Kentucky, Tennessee, Texas	666	818	1,228	1,089	1,459

Source: American Iron & Steel Institute

RAW MATERIALS

Pig iron: Composite prices . . . Averages of basic, foundry and charcoal iron prices

GRANITE CITY, ILL., PIG IRON

No. 2 Foundry, Gross Ton, at Furnace

	1934	1937	1938	1939	1940*	1945*
Jan.	\$17.50	\$21.00	\$24.00	\$21.00	\$23.00	\$24.00
Feb.	17.50	21.25	24.00	21.00	23.00	24.50
Mar.	17.50	23.60	24.00	21.00	23.00	25.00
Apr.	17.75	24.00	24.00	21.00	23.00	25.00
May	18.50	24.00	24.00	21.00	23.00	25.00
June	18.50	24.00	23.00	21.00	23.00	25.00
July	18.50	24.00	20.00	21.00	23.00	25.00
Aug.	18.50	24.00	20.00	21.00	23.00	25.00
Sept.	18.50	24.00	20.25	22.00	23.00	25.00
Oct.	18.50	24.00	21.00	23.00	23.00	25.30
Nov.	18.50	24.00	21.00	23.00	23.00	25.75
Dec.	18.50	24.00	21.00	23.00	23.50	25.75
Average	18.19	23.49	22.20	21.59	23.04	25.02

	1946	1947	1948	1949	1950	1951
Jan.	\$25.75	\$30.50	\$39.25	\$48.40	\$48.40	\$54.40
Feb.	25.75	30.50	40.00	48.40	48.40	54.40
Mar.	26.13	32.00	40.00	48.40	48.40	54.40
Apr.	26.50	33.50	40.00	48.40	48.40	54.40
May	26.50	33.50	41.43	48.40	48.40	54.40
June	28.50	33.50	45.75	48.40	48.40	54.40

	1946	1947	1948	1949	1950	1951
July	28.50	34.60	45.75	48.40	48.40	54.40
Aug.	28.50	36.63	47.34	48.40	48.40	54.40
Sept.	28.50	37.00	48.40	48.40	48.40	54.40
Oct.	28.50	37.00	48.40	48.40	48.40	54.40
Nov.	28.50	37.00	48.40	48.40	48.40	54.40
Dec.	29.70	37.00	48.40	48.40	53.65	54.40
Average	27.44	34.39	44.42	48.40	49.34	54.40

* Prior to September 1933, St. Louis prices are given.
* Price unchanged at \$24.00 from 1941 through 1944.

BIRMINGHAM PIG IRON PRICES

No. 2 Foundry Grade, Per Gross Ton

	1938	1937	1938	1939*	1941**	1945**
Jan.	\$15.50	\$17.38	\$20.38	\$17.38	\$19.38	\$20.38
Feb.	15.50	17.68	20.38	17.38	19.38	20.98
Mar.	15.50	19.93	20.38	17.38	19.98	21.38
Apr.	15.50	20.38	20.38	17.38	20.38	21.38
May	15.50	20.38	20.38	17.38	20.38	21.38
June	15.50	20.38	19.98	17.38	20.38	21.38
July	15.50	20.38	16.38	17.38	20.38	21.38
Aug.	15.50	20.38	16.38	17.38	20.38	21.38
Sept.	15.50	20.38	16.63	18.38	20.38	21.38
Oct.	15.50	20.38	17.38	19.38	20.38	21.68
Nov.	16.13	20.38	17.38	19.38	20.38	22.13
Dec.	16.88	20.38	17.38	19.38	20.38	22.13
Average	15.76	19.87	18.58	17.96	20.17	1.40

	1946	1947	1948	1949	1950	1951
Jan.	\$22.13	\$26.88	\$37.38	\$43.38	\$39.38	\$48.88
Feb.	22.13	26.88	37.38	43.38	42.38	48.88
Mar.	22.51	29.13	37.38	43.38	42.38	48.88
Apr.	22.88	29.88	37.38	43.38	42.38	48.88
May	22.88	29.88	38.38	39.71	42.38	48.88
June	24.88	29.88	39.38	39.38	42.38	48.88

	1946	1947	1948	1949	1950	1951
July	24.88	31.28	31.04	39.38	42.38	48.88
Aug.	24.88	34.13	43.38	39.38	42.38	48.88
Sept.	24.88	34.88	43.38	39.38	42.67	48.88
Oct.	24.88	34.88	43.38	39.38	45.88	48.88
Nov.	24.88	34.88	43.38	39.38	45.88	48.88
Dec.	26.88	34.60	43.38	39.38	48.88	48.88
Average	24.06	31.43	40.43	40.74	43.53	48.88

† Subject to .38¢ a ton deduction for 0.70 phosphorus and over.
* Price unchanged at \$19.38 through 1940.
** Price unchanged at \$20.38 from 1942 through 1944.

NO. 2 FOUNDRY PIG IRON PRICES

Mahoning, Shenango Valley, Per Gross Ton

	1934	1938	1937	1938	1939	1940*
Jan.	\$17.50	\$19.50	\$21.00	\$24.00	\$21.00	\$23.00
Feb.	17.50	19.50	21.25	24.00	21.00	23.00
Mar.	17.50	19.50	23.80	24.00	21.00	23.00
Apr.	17.75	19.50	24.00	24.00	21.00	23.00
May	18.50	19.50	24.00	24.00	21.00	23.00
June	18.50	19.50	24.00	23.20	21.00	23.00
July	18.50	19.50	24.00	20.00	21.00	23.00
Aug.	18.50	19.50	24.00	20.00	21.00	23.00
Sept.	18.50	19.50	24.00	20.25	22.00	23.00
Oct.	18.50	19.50	24.00	21.00	23.00	23.00
Nov.	18.50	19.75	24.00	21.00	23.00	23.00
Dec.	18.50	20.25	24.00	21.00	23.00	23.00
Average	18.19	19.60	23.49	22.20	21.59	23.03

	1945*	1946	1947	1948**	1950	1951
Jan.	\$24.00	\$25.75	\$30.50	\$39.37	\$46.50	\$52.50
Feb.	24.50	25.75	30.50	39.50	46.50	52.50
Mar.	25.00	26.13	33.50	39.50	46.50	52.50
Apr.	25.00	26.50	33.50	39.50	46.50	52.50
May	25.00	26.50	33.50	39.50	46.50	52.50
June	25.00	28.50	33.50	39.50	46.50	52.50

	1945*	1946	1947	1948**	1950	1951
July	25.00	28.50	34.70	42.50	46.50	52.50
Aug.	25.00	28.50	36.50	43.50	46.50	52.50
Sept.	25.00	28.50	36.50	43.50	47.50	52.50
Oct.	25.30	28.50	36.50	46.12	49.50	52.50
Nov.	25.75	28.50	36.50	46.50	49.50	52.50
Dec.	25.75	30.10	36.70	46.50	52.12	52.50
Average	25.02	27.64	34.38	42.12	47.55	52.50

* Price unchanged at \$24.00 from 1941 through 1944.
** Price unchanged at \$46.50 through 1949.

COMPOSITE PIG IRON PRICE

Average of THE IRON AGE quotations on basic pig iron at Valley furnaces and foundry iron at Chicago, Birmingham, Buffalo, Valley and Philadelphia, in gross tons.

	1930	1931	1932	1933	1934	1936
Jan.	\$18.19	\$15.90	\$14.68	\$13.56	\$16.90	\$18.84
Feb.	18.02	15.80	14.51	13.56	16.90	18.84
Mar.	17.75	15.71	14.45	13.56	16.90	18.84
Apr.	17.73	15.79	14.35	13.76	17.07	18.84
May	17.60	15.76	14.12	14.48	17.90	18.84
June	17.48	15.62	14.01	15.01	17.90	18.84

	1930	1931	1932	1933	1934	1936
July	17.16	15.56	13.76	15.50	17.90	18.84
Aug.	16.90	15.51	13.69	16.09	17.90	18.73
Sept.	16.70	15.44	13.64	16.71	17.90	18.73
Oct.	16.31	15.21	13.63	16.61	17.90	18.73
Nov.	16.21	14.97	13.59	16.61	17.90	18.98
Dec.	15.95	14.86	13.56	16.90	17.90	19.73
Average	17.17	15.51	14.00	15.20	17.58	18.90

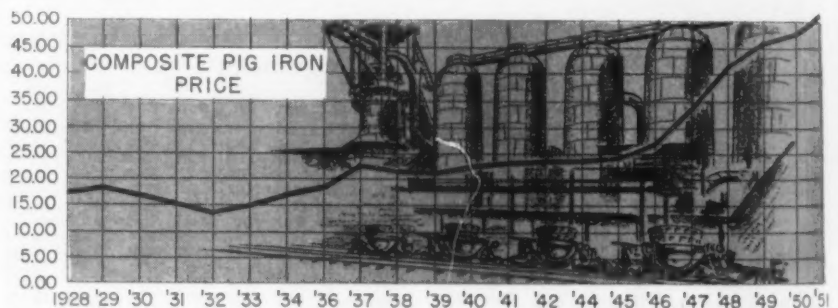
	1937	1938	1939	1940	1941*	1945*
Jan.	\$20.25	\$23.25	\$20.61	\$22.61	\$23.45	\$23.61
Feb.	20.50	23.25	20.61	22.61	23.45	24.11
Mar.	22.85	23.25	20.61	22.61	23.53	24.61
Apr.	23.25	23.25	20.61	22.61	23.61	24.61
May	23.25	23.25	20.61	22.61	23.61	24.61
June	23.25	22.98	20.61	22.61	23.61	24.61

	1937	1938	1939	1940	1941*	1945*
July	23.25	19.61	20.61	22.61	23.61	24.61
Aug.	23.25	19.61	20.61	22.61	23.61	24.61
Sept.	23.25	19.82	21.61	22.61	23.61	24.61
Oct.	23.25	20.57	22.61	22.61	23.61	24.91
Nov.	23.25	20.61	22.61	22.61	23.61	25.37
Dec.	23.25	20.61	22.61	22.95	23.61	25.37
Average	22.74	21.67	21.19	22.64	23.58	24.81

	1946	1947	1948	1949	1950	1951
Jan.	\$25.37	\$30.14	\$39.03	\$46.79	\$48.98	\$52.69
Feb.	25.37	30.15	40.27	46.74	48.38	52.69
Mar.	25.75	32.92	40.32	46.74	48.38	52.69
Apr.	26.12	33.15	40.11	46.64	48.38	52.69
May	26.45	33.15	40.33	45.97	48.38	52.69
June	28.13	33.15	40.51	45.91	48.38	52.69

	1946	1947	1948	1949	1950	1951
July	28.13	34.52	42.25	45.91	48.38	52.69
Aug.	28.13	36.84	44.34	45.91	46.56	52.69
Sept.	28.13	36.95	44.96	45.90	47.16	52.69
Oct.	28.13	36.95	46.63	45.88	49.29	52.72
Nov.	28.13	37.04	48.84	45.88	49.69	52.72
Dec.	29.64	37.24	48.91	45.88	52.50	52.72
Average	27.29	34.35	42.94	46.18	47.85	52.70

* Price unchanged at \$23.61 from 1942 through 1944.



CHICAGO CHARCOAL PIG IRON

Prices Per Gross Ton

	1938	1939	1940	1941*	1943**	1945**
Jan.	\$30.24	\$28.34	\$30.34	\$30.34	\$31.34	\$37.34
Feb.	30.24	28.34	30.34	30.34	31.34	37.34
Mar.	30.24	28.34	30.34	30.34	31.34	41.09
Apr.	30.32	28.34	30.34	30.34	31.34	42.34
May	30.34	28.34	30.34	31.09	31.34	42.34
June	30.34	28.34	30.34	31.34	31.34	42.34
July	28.34	28.34	30.34	31.34	31.34	42.34
Aug.	28.34	28.34	30.34	31.34	31.34	42.34
Sept.	28.34	29.34	30.34	31.34	37.34	42.34
Oct.	28.34	30.34	30.34	31.34	37.34	42.34
Nov.	28.34	30.34	30.34	31.34	37.34	42.34
Dec.	28.34	30.34	30.34	31.34	37.34	42.34
Average	29.31	28.92	30.34	30.99	33.34	41.40

	Average	29.31	28.92	30.34	30.99	33.34	41.40
		1946	1947	1948	1949	1950	1951
Jan.	\$42.34	\$42.99	\$61.21	\$73.78	\$68.56	\$70.56
Feb.	42.34	42.99	62.46	73.78	68.56	70.56
Mar.	42.34	45.24	62.46	73.78	68.56	70.56
Apr.	42.34	45.99	62.46	73.78	68.56	70.56
May	42.34	45.98	62.47	73.79	69.56	70.56

Pig Iron: Lake Superior iron ore, prices, production, shipments

RAW MATERIALS

PRICES

Gross Ton

1939	1940*
\$21.00	\$23.00
21.00	23.00
21.00	23.00
21.00	23.00
21.00	23.00

1950	1951
\$21.00	\$23.00
21.00	23.00
21.00	23.00
21.00	23.00
21.00	23.00

1950	1951
\$21.00	\$23.00
21.00	23.00
21.00	23.00
21.00	23.00
21.00	23.00

1950	1951
\$21.00	\$23.00
21.00	23.00
21.00	23.00
21.00	23.00
21.00	23.00

high 1944.

CHICAGO FOUNDRY PIG IRON

No. 2, Per Gross Ton, at Furnace

	1934	1936	1937	1938	1940*	1945*
Jan.	\$17.50	\$19.50	\$21.25	\$24.00	\$23.00	\$24.50
Feb.	17.50	19.50	21.25	24.00	23.00	24.50
Mar.	17.50	19.50	21.25	24.00	23.00	24.50
Apr.	17.50	19.50	21.25	24.00	23.00	24.50
May	17.50	19.50	21.25	24.00	23.00	24.50
June	17.50	19.50	21.25	24.00	23.00	24.50
July	18.50	19.50	24.00	20.00	23.00	25.00
Aug.	18.50	19.50	24.00	20.00	23.00	25.00
Sept.	18.50	19.50	24.00	20.00	23.00	25.00
Oct.	18.50	19.50	24.00	20.00	23.00	25.00
Nov.	18.50	19.50	24.00	20.00	23.00	25.00
Dec.	18.50	19.50	24.00	20.00	23.00	25.00
Average	18.19	19.60	23.49	22.20	23.03	25.02

	1946	1947	1948	1949	1950	1951
Jan.	\$25.75	\$30.50	\$38.75	\$46.50	\$46.50	\$52.50
Feb.	25.75	30.50	38.75	46.50	46.50	52.50
Mar.	26.13	33.00	39.00	46.50	46.50	52.50
Apr.	26.50	33.00	39.00	46.50	46.50	52.50
May	26.50	33.00	39.00	46.50	46.50	52.50
June	26.50	33.00	39.00	46.50	46.50	52.50
July	28.50	34.20	42.00	46.50	46.50	52.50
Aug.	28.50	36.00	43.00	46.50	46.50	52.50
Sept.	28.50	36.00	43.00	46.50	46.50	52.50
Oct.	28.50	36.00	46.50	46.50	49.50	52.50
Nov.	28.50	36.00	46.50	46.50	49.50	52.50
Dec.	30.10	36.40	46.50	46.50	52.50	52.50
Average	27.64	34.80	41.77	46.50	47.58	52.50

* Price unchanged at \$24.00 from 1941 through 1944.

BUFFALO FOUNDRY PIG IRON

No. 2 Grade, Per Gross Ton, at Furnace

	1934	1937	1938	1939	1940*	1945*
Jan.	\$17.50	\$21.00	\$24.00	\$21.00	\$23.00	\$24.00
Feb.	17.50	21.25	24.00	21.00	23.00	24.50
Mar.	17.50	23.60	24.00	21.00	23.00	25.00
Apr.	17.50	24.00	24.00	21.00	23.00	25.00
May	18.50	24.00	24.00	21.00	23.00	25.00
June	18.50	24.00	23.20	21.00	23.00	25.00
July	18.50	24.00	20.00	21.00	23.00	25.00
Aug.	18.50	24.00	20.00	21.00	23.00	25.00
Sept.	18.50	24.00	20.13	22.00	23.00	25.00
Oct.	18.50	24.00	20.88	23.00	23.00	25.30
Nov.	18.50	24.00	21.00	23.00	23.00	25.75
Dec.	18.50	24.00	21.00	23.00	23.40	25.75
Average	18.17	23.40	22.18	21.59	23.03	25.02

	1946	1947	1948	1949	1950	1951
Jan.	\$25.75	\$30.50	\$40.37	\$47.28	\$46.50	\$52.50
Feb.	25.75	30.50	42.12	47.00	46.50	52.50
Mar.	26.13	32.38	42.45	47.00	46.50	52.50
Apr.	26.50	33.00	41.19	46.75	46.50	52.50
May	26.50	33.00	41.37	46.50	46.50	52.50
June	26.50	33.00	41.44	46.50	46.50	52.50
July	28.50	34.20	42.08	46.50	46.50	52.50
Aug.	28.50	37.37	44.90	46.50	46.50	52.50
Sept.	28.50	37.18	45.87	46.50	47.25	52.50
Oct.	28.50	37.00	47.12	46.50	49.50	52.50
Nov.	28.50	37.75	47.50	46.50	49.50	52.50
Dec.	30.10	38.00	47.50	46.50	52.50	52.50
Average	27.64	34.49	43.65	46.57	47.56	52.50

* Price unchanged at \$24.00 from 1941 through 1944.

MALLEABLE PIG IRON PRICES

Per Gross Ton, Mahoning, Shenango Valley

	1934	1936	1937	1938	1939	1940*
Jan.	\$17.50	\$19.50	\$21.00	\$24.00	\$21.00	\$23.00
Feb.	17.50	19.50	21.25	24.00	21.00	23.00
Mar.	17.50	19.50	23.60	24.00	21.00	23.00
Apr.	17.50	19.50	24.00	24.00	21.00	23.00
May	18.50	19.50	24.00	24.00	21.00	23.00
June	18.50	19.50	24.00	23.00	21.00	23.00
July	18.50	19.50	24.00	20.00	21.00	23.00
Aug.	18.50	19.50	24.00	20.00	21.00	23.00
Sept.	18.50	19.50	24.00	20.25	22.00	23.00
Oct.	18.50	19.50	24.00	21.00	23.00	23.00
Nov.	18.50	19.75	24.00	21.00	23.00	23.00
Dec.	18.50	20.50	24.00	21.00	23.00	23.50
Average	18.19	19.60	23.49	22.20	21.59	23.04

	1945*	1946	1947	1948**	1950	1951
Jan.	\$24.00	\$25.75	\$30.50	\$39.50	\$46.50	\$52.50
Feb.	24.00	25.75	30.50	39.50	46.50	52.50
Mar.	25.00	26.13	33.00	39.50	46.50	52.50
Apr.	25.00	26.50	33.00	39.50	46.50	52.50
May	25.00	26.50	33.00	39.50	46.50	52.50
June	25.00	26.50	33.00	39.50	46.50	52.50
July	25.00	26.50	34.70	42.50	46.50	52.50
Aug.	25.00	26.50	36.50	43.50	46.50	52.50
Sept.	25.00	26.50	36.50	43.50	47.50	52.50
Oct.	25.30	26.50	36.50	48.12	49.50	52.50
Nov.	25.75	26.50	36.50	46.50	49.50	52.50
Dec.	25.75	30.10	36.70	46.50	52.50	52.50
Average	25.02	27.48	34.38	42.13	47.58	52.50

* Price unchanged at \$24.00 from 1941 through 1944.
** Price unchanged at \$46.50 through 1949.

LAKE SUPERIOR IRON ORES

Avg. Analyses, Combined Ranges, Grades
Analyses, Pct

Year	Iron, Natural	Phos.	Silica	Mang.	Mol. ture
1950	50.38	0.032	9.85	0.77	11.11
1949	50.39	0.096	9.72	0.78	11.12
1948	50.40	0.093	9.30	0.76	11.36
1947	50.91	0.093	9.09	0.75	11.28
1946	51.32	0.087	8.83	0.74	11.22
1945	51.69	0.089	8.52	0.72	10.96
1944	51.72	0.088	8.42	0.74	11.02
1943	51.58	0.091	8.32	0.82	11.06
1942	51.65	0.089	8.21	0.79	10.96
1941	51.83	0.085	8.18	0.76	11.01
1940	52.09	0.085	8.00	0.77	10.93
1939	51.75	0.085	8.27	0.76	10.73
1938	51.90	0.089	8.25	0.81	10.13
1937	51.53	0.091	8.27	0.82	11.31
1936	51.45	0.091	8.62	0.81	10.92
1935	51.44	0.093	8.93	0.76	10.76
1934	51.49	0.087	8.93	0.76	10.66
1933	51.85	0.090	8.96	0.71	10.47
1932	52.18	0.099	9.05	0.68	9.92

Source: Lake Superior Iron Ore Assn.

LAKE SUPERIOR IRON ORES

Per Gross Ton at Lower Lake Ports

BESSEMER ORES					NON-BESSEMER ORES				
Guarantee		Price			Guarantee		Price		
Iron	Phos-phorus	Old	Range	Mesabi	Iron	Old	Range	Mesabi	High Phos-phorus
Natural	Dry				Natural				
1915	55.00	0.045	\$3.75	\$3.45	1915	51.50	\$3.00	\$2.80	
1916	55.00	0.045	4.45	4.20	1916	51.50	3.70	3.85	
1917	55.00	0.045	5.95	5.70	1917	51.50	5.20	5.05	
1918 to July 1	55.00	0.045	5.95	5.70	1918 to July 1	51.50	5.20	5.05	
1918-July 1 to Sept. 30	55.00	0.045	6.40	6.15	1918-July 1 to Sept. 30	51.50	5.65	6.80	
1918-Oct. 1 on	55.00	0.045	6.85	6.40	1918-Oct. 1 on	51.50	5.90	5.75	
1919	55.00	0.045	6.45	6.20	1919	51.50	5.70	5.55	\$5.35
1920	55.00	0.045	7.45	7.20	1920	51.50	6.70	6.55	6.35
1921	55.00	0.045	6.45	6.20	1921	51.50	5.70	5.55	5.35
1922	55.00	0.045	5.95	5.70	1922	51.50	5.20	5.05	4.85
1923	55.00	0.045	6.45	6.20	1923	51.50	5.70	5.55	5.35
1924	55.00	0.045	4.95	5.40	1924	51.50	4.90	4.75	4.85
1925 through 1928	51.50	0.045	4.55	4.40	1925 through 1928	51.50	4.40	4.25	4.15
1929 through 1936	51.50	0.045	4.80	4.65	1929 through 1936	51.50	4.65	4.50	4.40
1937 to Apr. 15, 1940	51.50	0.045	5.25	5.10	1937 to Apr. 15, 1940	51.50	5.10	4.95	4.85
1940-Apr. 16 on	51.50	0.045	4.75	4.80	1940-Apr. 16 on	51.50	4.80	4.45	4.35
1941 through 1944	51.50	0.045	4.75	4.80	1941 through 1944	51.50	4.60	4.48	4.35
1945 to June 24, 1946	51.50	0.045	4.95	4.70	1945 to June 24, 1946	51.50	4.80	4.55	4.55
1946-June 24 to Dec. 31	51.50	0.045	5.45	5.20	1946-June 24 to Dec. 31	51.50	5.30	5.08	5.05
1947 to Apr. 1, 1948	51.50	0.045	5.95	5.70	1947 to Apr. 1, 1948	51.50	5.80	5.58	5.55
1948-Apr. 1 on	51.50	0.045	6.80	6.35	1948-Apr. 1 on	51.50	6.45	6.20	6.20
1949	51.50	0.045	7.80	7.35	1949	51.50	7.45	7.20	7.20
1950 Feb. 1 to Dec. 1	51.50	0.045	8.10	7.85	1950 Feb. 1 to Dec. 1	51.50	7.95	7.70	7.70
1950 Dec. 1 on	51.50	0.045	8.70	8.45	1950 Dec. 1 on	51.50	8.55	8.30	8.30
1951	51.50	0.045	8.70	8.45	1951	51.50	8.55	8.30	8.30

SHIPMENTS OF IRON ORE

Lake Superior Shipments, Gross Tons

Iron ore: World iron ore production by countries . . . U. S. production of iron ore . . . Iron mining employment and wages.

WORLD PRODUCTION OF IRON ORE In Thousands of Metric Tons¹

Country ¹	1945	1946	1947	1948	1949	1950
North America:						
Canada	1,030	1,406	1,741	1,213	3,334	3,300
Newfoundland	1,000	1,264	1,467	1,492		
Cuba			63	37	12	12
Mexico	283	275	332	333	363	420
United States	99,795	71,980	94,586	102,625	86,301	99,010
South America:						
Argentina	43	55	61	(2)	(2)	(2)
Brazil	718	818	927	1,441	1,489	1,900
Chile (2)	945	1,353	1,606	2,545	2,897	2,975
Venezuela						190
Europe:						
Austria	323	482	885	1,260	1,468	1,889
Belgium	30	40	68	87	42	41
Czechoslovakia	278	1,116	1,363	1,428	1,400	(4)
France (2)	7,713	18,232	18,719	23,061	31,424	(4)
Germany:						
Federal Republic (6)	(4)	6,000	4,483	7,276	9,112	10,882
Soviet Zone (6)		236	283	250	(4)	329
Greece (Exports)		13	41	47	22	41
Hungary	(2)	48	133	244	318	339
Italy	134	132	226	543	521	442
Luxembourg	1,406	2,247	1,992	3,399	4,137	3,845
Norway	79	60	128	199	267	(8)
Poland	106	395	504	659	699	790
Rumania	141	112	121	(4)	209	(4)
Spain	1,171	1,596	1,814	1,631	1,876	2,079
Sweden	3,930	6,867	8,895	13,287	13,748	13,827
Switzerland	17	18	45	75	70	55
U.S.S.R. (9)	(4)	18,000	(4)	24,000		
United Kingdom:						
Great Britain (10)	14,426	12,368	11,269	13,299	13,612	13,145
Northern Ireland	(2)					(2)
Yugoslavia	(4)	34	399	739	679	(4)
Asia:						
China	4,170	(11)	15	(11)	247	(2)
Hong Kong					1	59
India	2,301	2,446	2,539	2,321	2,854	(4)
Indo-China	8					3,000
Japan (12)	1,356	566	500	561	780	910
Korea:						
North	833	(4)	75	(4)	93	(2)
South						
Malaya	14	(14)	1	1	9	807
Philippines	(2)				18	370
Portuguese India					8	151
Turkey	128	112	148	102	211	234
U.S.S.R.	(9)	(9)	(2)	(2)	(2)	(2)
Africa:						
Algeria	1,202	1,671	1,558	1,872	2,538	2,873
French Morocco	(14)	125	186	304	357	319
Northern Rhodesia	(14)	741	2	(14)	2	(2)
Sierra Leone	641		854	968	975	1,185
Southern Rhodesia			(14)	30	51	57
Spanish Morocco	765	787	869	904	944	980
Tunisia	132	184	404	690	712	750
Union of South Africa	775	947	1,162	1,164	1,242	1,189
Oceania:						
Australia	1,589	1,849	2,181	2,077	1,484	2,403
New Caledonia			(2)	(2)		19
New Zealand	6	8	6	5	4	
Total (estimate)	162,000	154,000	187,000	217,000	220,000	245,000

(1) In addition to countries listed. Belgian Congo, Bulgaria, Burma, Egypt, Eritrea, French West Africa, Madagascar, Portugal, and South-West Africa report production of iron ore in past years, but quantity produced is believed insufficient to affect estimate of world total. (2) Data not available; estimate by author of chapter included in total. (3) Production of Tafi mines. (4) Estimate. (5) Including Moselle (Lorraine). (6) Exclusive of manganese iron ore carrying 12 to 30 percent manganese. (7) Data represent Trianon Hungary after October 1944. (8) Including titaniferous iron ore. (9) U.S.S.R. in Asia included with U.S.S.R. in Europe. (10) Exclusive of bog ore, which is used mainly for purification of gas. (11) Production of National Resources Commission only. (12) Includes iron sand production as follows: 1945-46, 235,094 tons; 1946, 10,472 tons; 1947, 3,772 tons; 1948, 2,588 tons; 1949, 23,724 tons; 1950, 87,504 tons. (13) Fiscal year ended Mar. 31 of year following that stated. (14) Less than 500 tons.

Source: Bureau of Mines

U. S. PRODUCTION OF IRON ORE

In Gross Tons, Includes Lake Superior, Northeastern, Southeastern, Western

IRON MINING EMPLOYMENT, WAGES

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thou-sands)	
1947	\$52.34	40.2	\$1.302	31.6	34.3
1948	58.32	41.3	1.412	33.6	36.6
1949	59.06	39.8	1.484	30.4	33.7
1950	61.96	40.9	1.515	31.9	35.5
1951:					
Jan.	70.31	41.8	1.682	32.6	36.2
Feb.	70.68	42.5	1.670	32.7	36.5
Mar.	69.22	41.3	1.676	32.6	36.4
Apr.	73.31	43.2	1.697	33.1	36.9
May	75.48	44.4	1.700	33.8	37.6
June	70.89	41.8	1.696	34.6	38.5
July	72.06	41.8	1.724	34.4	38.3
Aug.	76.37	45.0	1.697	35.2	39.1

Source: Bureau of Labor Statistics

Year	Lake Superior	Northeastern	Southeastern	Western	Total
1931	25,877,410	936,960	3,644,608	672,520	31,131,500
1932	8,139,427	185,009	1,375,459	167,021	9,646,916
1933	14,011,032	396,228	2,159,958	385,970	17,553,188
1934	21,031,019	806,944	2,347,625	300,028	24,585,616
1935	25,368,637	1,348,247	3,295,684	526,684	30,540,252
1936	41,781,215	2,069,764	4,214,587	723,179	48,788,745
1937	61,637,635	3,145,177	6,351,053	939,683	72,083,548
1938	21,306,410	2,306,910	4,325,729	506,233	28,447,282
1939	41,679,608	3,112,893	16,021,781	917,448	61,731,730
1940	61,471,323	3,559,924	17,446,103	1,218,549	73,695,899
1941	76,858,332	3,962,072	6,145,900	1,443,275	82,409,579
1942	91,005,021	3,119,506	9,159,228	1,599,429	105,823,184
1943	85,789,017	3,467,676	8,478,736	2,859,994	101,247,833
1944	79,111,320	3,849,396	7,121,676	3,442,405	94,111,798
1945	74,821,045	3,620,147	6,329,987	3,087,774	88,376,383
1946	59,042,154	2,596,349	6,247,098	2,450,611	70,843,113
1947	76,531,769	3,987,195	7,527,321	4,502,512	93,081,629
1948	82,630,430	4,422,971	8,365,390	5,104,703	101,003,492
1949	68,494,123	3,863,833	7,801,822	4,441,671	84,937,447
1950	79,000,000	4,800,000	8,000,000	5,200,000	96,040,000

¹ Includes Texas.

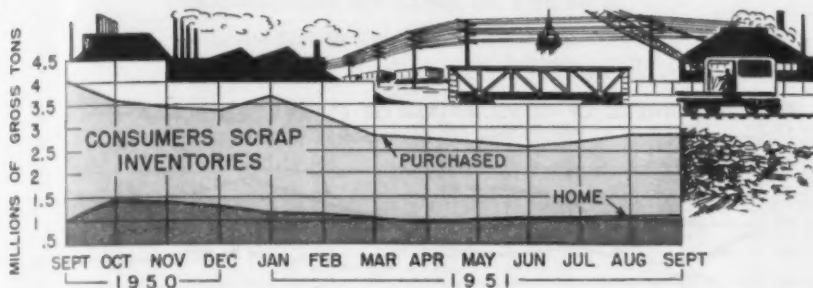
² Includes by-product ore not assigned to districts.

³ Estimate by Bureau of Mines.

Source: U. S. Bureau of Mines

Scrap prices: No. 1 heavy melting and
cast prices in major steelmaking areas.

RAW MATERIALS



MACHINERY CAST AT CHICAGO

Prices of No. 1 Scrap, Per Gross Ton†

	1934	1936	1937	1939	1940	1941*
Jan.	\$9.50	\$12.00	\$15.87	\$12.56	\$14.00	\$18.88
Feb.	9.50	12.75	18.25	12.75	13.75	19.25
Mar.	9.50	13.10	17.40	12.75	13.56	20.75
Apr.	9.50	12.50	17.12	12.12	14.81	\$22.33
May	8.90	12.00	15.25	11.75	16.31	21.40
June	7.50	12.00	15.00	12.15	17.31	20.00
July	8.05	12.12	15.75	12.25	16.75	20.00
Aug.	8.00	13.37	18.55	12.25	16.88	20.00
Sept.	8.00	13.00	14.39	14.50	17.13	20.00
Oct.	8.00	14.00	13.18	16.87	17.75	20.00
Nov.	8.25	14.00	11.65	16.65	18.00	20.00
Dec.	8.65	14.75	12.12	14.50	19.13	20.00
Average	8.69	13.02	15.04	13.34	16.26	20.21

	1946*	1947	1948	1949	1950	1951
Jan.	\$20.00	\$43.38	\$68.00	\$57.25	\$38.50	\$63.00
Feb.	20.00	44.56	65.25	46.00	39.00	49.00
Mar.	20.00	46.00	66.50	41.20	39.75	49.00
Apr.	20.00	42.70	73.12	29.63	41.50	49.00
May	20.00	38.00	72.50	27.90	45.70	49.00
June	20.00	41.81	69.90	28.69	47.25	49.00
July	20.00	46.00	71.50	30.75	45.50	49.00
Aug.	20.00	49.38	74.30	39.30	49.10	49.00
Sept.	22.50	49.00	71.25	42.25	50.25	49.00
Oct.	25.00	51.00	68.87	41.25	52.90	49.00
Nov.	32.28	52.75	72.20	43.88	60.38	49.00
Dec.	41.05	60.30	69.50	39.85	64.80	49.00
Average	23.40	47.12	70.48	39.00	47.85	50.17

† Changed from net ton basis April 30, 1941.

* Price unchanged at \$20.00 from 1942 through 1945.
Ceiling prices do not include delivery costs.

PHILADELPHIA HEAVY MELTING

Prices of No. 1 Scrap, Per Gross Ton

	1937	1939	1940	1941*	1944*	1945
Jan.	\$17.37	\$15.25	\$18.00	\$20.50	\$18.75	\$18.75
Feb.	18.50	15.25	17.38	20.00	18.75	18.75
Mar.	19.60	15.38	17.12	20.00	18.75	18.75
Apr.	20.00	15.62	16.75	19.00	18.75	18.75
May	18.62	15.25	17.58	18.75	18.75	18.40
June	17.20	15.41	19.09	18.75	18.75	18.25
July	19.00	15.62	18.95	18.75	18.75	18.75
Aug.	19.75	18.25	19.58	18.75	18.60	18.75
Sept.	19.00	18.87	20.50	18.75	16.68	18.75
Oct.	16.38	22.35	20.70	18.75	14.60	18.75
Nov.	13.75	20.75	20.75	18.75	15.50	18.75
Dec.	14.25	18.92	20.85	18.75	18.50	18.75
Average	17.78	17.08	18.98	19.13	17.01	18.68

	1946	1947	1948	1949	1950	1951
Jan.	\$18.75	\$31.00	\$42.50	\$42.75	\$23.10	\$46.70
Feb.	18.75	33.38	41.50	39.75	23.00	43.75
Mar.	18.75	39.38	40.80	35.10	23.85	42.50
Apr.	18.75	33.10	41.50	23.00	25.39	42.50
May	18.75	29.09	42.21	22.00	28.70	42.50
June	18.75	33.63	42.50	19.50	34.63	42.50
July	18.75	38.45	43.12	17.50	32.81	42.50
Aug.	18.75	38.50	45.00	18.31	36.50	42.50
Sept.	18.75	36.80	45.00	23.35	38.50	42.50
Oct.	18.75	40.25	45.00	24.25	38.50	42.10
Nov.	22.94	42.63	44.75	24.50	39.44	41.50
Dec.	28.00	41.10	44.50	24.25	42.81	41.50
Average	19.57	36.50	43.20	26.19	32.27	42.75

* Price unchanged at \$18.75 throughout 1942 and 1943.

PITTSBURGH HEAVY MELTING

Prices of No. 1 Scrap, Per Gross Ton

	1937	1939	1940	1941*	1944*	1945
Jan.	\$19.50	\$15.72	\$18.25	\$22.13	\$20.00	\$20.00
Feb.	19.81	15.72	17.50	21.00	20.00	20.00
Mar.	23.15	15.97	18.88	21.00	20.00	20.00
Apr.	22.25	15.61	18.55	20.20	20.00	20.00
May	19.38	14.48	18.37	20.00	20.00	20.00
June	18.45	15.12	20.06	20.00	20.00	20.00
July	19.75	15.56	19.10	20.00	20.00	20.00
Aug.	21.85	16.18	18.56	20.00	19.95	20.00
Sept.	19.62	19.88	20.00	20.00	18.25	20.00
Oct.	16.62	23.05	21.45	20.00	16.10	20.00
Nov.	13.75	20.58	21.69	20.00	17.13	20.00
Dec.	13.75	18.58	22.28	20.00	19.94	20.00
Average	18.86	17.17	19.23	20.38	19.28	20.00

	1946	1947	1948	1949	1950	1951
Jan.	\$20.00	\$32.25	\$40.37	\$41.25	\$29.95	\$47.13
Feb.	20.00	34.94	40.43	39.25	31.25	45.75
Mar.	20.00	39.85	40.25	36.30	32.13	44.00
Apr.	20.00	35.40	40.25	24.94	33.00	44.00
May	20.00	30.38	40.25	23.00	37.75	44.00
June	20.00	33.88	40.25	22.00	44.50	44.00
July	20.00	38.45	40.87	20.75	41.50	44.00
Aug.	20.00	40.00	42.75	21.94	43.90	44.00
Sept.	20.00	37.75	42.75	27.35	43.75	44.00
Oct.	20.00	40.75	42.75	29.44	43.75	43.80
Nov.	23.94	41.88	42.75	31.95	43.75	43.00
Dec.	25.00	40.00	42.75	30.75	45.57	43.00
Average	21.08	37.13	41.38	29.08	39.16	44.21

* Price unchanged at \$20.00 throughout 1942 and 1943.

CUPOLA CAST AT CINCINNATI

Prices of No. 1 Scrap, Per Gross Ton

	1934	1936	1937	1939	1940	1941*
Jan.	\$ 9.50	\$11.37	\$15.75	\$13.75	\$17.65	\$22.75
Feb.	9.50	11.75	16.12	13.75	16.89	22.50
Mar.	10.00	12.40	17.30	14.38	16.25	\$22.50
Apr.	10.00	12.19	17.37	13.56	16.05	.....
May	9.45	11.50	14.44	12.00	16.89	.....
June	9.00	11.20	14.00	12.13	19.38	.....
July	8.00	11.19	14.87	12.25	18.85	.....
Aug.	8.88	12.43	16.25	11.80	18.75	.....
Sept.	8.75	13.60	14.25	15.38	20.12	\$22.50
Oct.	8.75	14.00	13.38	19.55	20.55	22.50
Nov.	8.88	14.00	11.85	18.88	21.00	22.50
Dec.	9.85	15.12	10.75	17.75	22.50	22.50
Average	9.30	12.56	14.69	14.88	18.71	.....

	1946*	1947	1948†	1949†	1950†	1951†
Jan.	\$20.00	\$34.00	\$60.00	\$60.00	\$36.90	\$85.50
Feb.	20.00	35.38	66.78	49.00	35.75	49.00
Mar.	20.00	47.00	63.70	42.00	38.50	49.00
Apr.	20.00	45.60	63.50	32.00	40.50	49.00
May	20.00	43.25	63.50	27.50	44.90	49.00
June	20.00	44.98	63.50	28.30	46.75	49.00
July	20.00	46.50	64.75	25.50	46.50	49.00
Aug.	20.00	45.50	67.00	29.88	49.10	49.00
Sept.	22.50	44.50	67.00	36.50	53.50	49.00
Oct.	25.00	45.50	65.50	40.50	59.20	49.00
Nov.	26.25	50.38	65.50	41.00	63.75	49.00
Dec.	30.80	53.60	65.50	40.25	65.25	49.00
Average	22.05	44.87	64.68	37.54	48.39	50.38

† Average of No. 1 cupola cast prices.
‡ In transition from open market quotations to OPA price maximums, this grade not quoted. However, in September, the maximum schedules were revised to include this grade.
* Price unchanged at \$20.00 from 1942 through 1945.
Ceiling prices do not include delivery costs.

CONSUMERS' SCRAP INVENTORIES

In Gross Tons, Purchased and Home

Date	Purchased	Home
January 31, 1949	4,058,000	1,329,000
February 28, 1949	3,989,000	1,265,000
March 31, 1949	3,907,000	1,308,000
April 30, 1949	3,784,000	1,386,000
May 31, 1949	3,678,000	1,452,000
June 30, 1949	3,637,000	1,563,000
July 31, 1949	3,507,000	1,567,000
September 30, 1949	2,940,000	1,367,000
October 31, 1949	3,217,000	1,551,000
November 30, 1949	3,396,000	1,512,000
December 31, 1949	3,639,000	1,466,000
January 31, 1950	3,439,000	1,382,000
February 28, 1950	3,291,000	1,311,000
March 31, 1950	3,033,000	1,199,000
April 30, 1950	2,854,000	1,174,000
May 31, 1950	2,624,000	1,224,000
June 30, 1950	3,261,000	1,338,000
July 31, 1950	3,529,000	1,430,000
August 31, 1950	3,676,000	1,517,000
September 30, 1950	3,621,000	1,529,000
September 30, 1951	2,677,083	1,084,735

Source: U. S. Bureau of Mines

CHICAGO HEAVY MELTING SCRAP

Prices of No. 1 Scrap, Per Gross Ton†

	1937	1939	1940	1941*	1944*	1945
Jan.	\$17.81	\$13.87	\$16.38	\$20.00	\$18.75	\$18.75
Feb.	19.25	13.94	15.75	19.25	18.75	18.75
Mar.	20.60	14.25	15.69	19.88	18.75	18.75
Apr.	20.56	13.37	15.33	18.95	18.75	18.75
May	17.12	12.75	17.00	18.75	18.75	18.75
June	15.70	13.45	18.19	18.75	18.75	18.75
July	17.62	13.50	17.35	18.75	18.75	18.75
Aug.	19.70	13.87	18.03	18.75	18.75	18.75
Sept.	17.56	16.22	19.22	18.75	18.69	18.75
Oct.	14.69	19.16	19.75	18.75	16.90	18.75
Nov.	12.50	17.85	20.06	18.75	17.00	18.75
Dec.	12.38	16.67	20.60	18.75	16.69	18.75
Average	17.12	14.91	17.73	19.01	18.27	18.75

	1946	1947	1948	1949	1950	1951
Jan.	\$18.75	\$29.75	\$39.56	\$40.06	\$26.70	\$44.83
Feb.	18.75	31.63	39.12	35.63	27.50	43.02
Mar.	18.75	36.69	39.95	33.70	28.25	42.50
Apr.	18.75	33.05	39.10	23.63	28.75	42.50
May	18.75	29.38	39.25	23.00	33.75	42.50
June	18.75	30.88	39.25	20.85	38.75	42.50
July	18.75	36.97	40.81	19.75	37.25	42.50
Aug.	18.75	39.88	41.75	22.00	39.15	42.50
Sept.	18.75	38.75	41.75	26.30	39.81	42.

RAW MATERIALS

Scrap, coal: Scrap consumption, composite price of No. 1 heavy . . . Ingot rate and scrap price trend . . . Coal consumption.

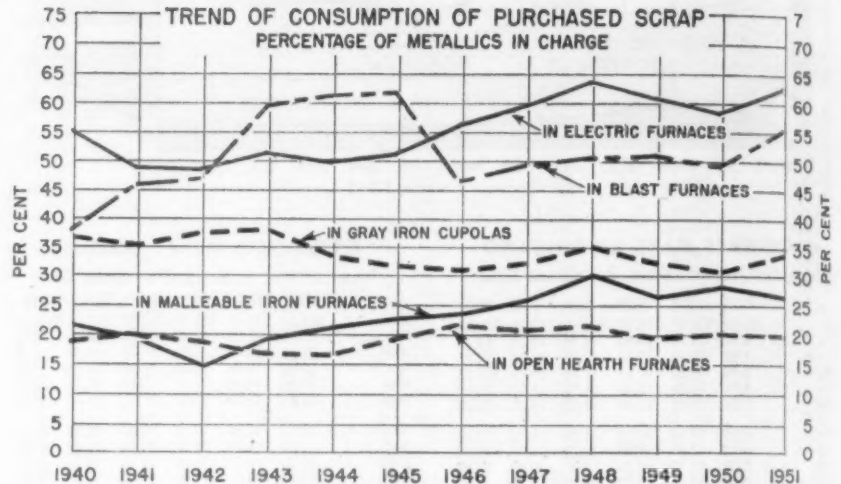
U. S. CONSUMPTION OF SCRAP

Gross Tons, Domestic, Exports, Imports

	Domestic Consumption (Purchased and Home)	Exports (Purchased)	Imports (Purchased)
1910	13,100,000	25,825	72,764
1911	12,100,000	77,918	17,272
1912	16,100,000	106,965	23,612
1913	15,300,000	94,429	44,154
1914	12,200,000	33,134	34,839
1915	18,600,000	79,361	79,962
1916	23,400,000	212,765	116,039
1917	26,800,000	145,574	180,034
1918	25,400,000	2,160	63,730
1919	20,700,000	27,275	177,293
1920	26,000,000	219,250	140,645
1921	12,400,000	37,592	41,489
1922	23,700,000	67,784	142,969
1923	27,000,000	65,980	162,068
1924	26,200,000	97,748	86,841
1925	30,700,000	82,573	99,815
1926	32,200,000	104,838	86,725
1927	30,700,000	239,209	80,207
1928	34,000,000	616,148	63,314
1929	37,600,000	557,044	90,479
1930	26,800,000	356,649	27,482
1931	18,300,000	136,125	16,279
1932	10,000,000	227,522	9,775
1933	17,400,000	773,406	50,133
1934	18,800,000	1,835,170	44,421
1935	26,415,230	2,103,859	64,768
1936	36,388,133	1,826,132	142,245
1937	38,006,272	4,082,590	81,640
1938	21,344,934	2,998,581	24,451
1939	32,424,407	3,677,427	29,492
1940	39,758,635	2,820,789	1,827
1941	52,871,657	792,760	64,065
1942	53,808,171	126,473	82,257
1943	55,045,495	48,857	128,018
1944	54,776,072	85,430	97,162
1945	50,170,612	76,318	41,313
1946	44,182,240	121,679	26,954
1947	54,343,000	173,412	32,312
1948	56,285,000	216,093	370,600
1949	48,516,000	263,000	977,154
1950	61,497,000	186,000	652,000
1951*	68,750,000	307,000	393,000

* Estimate by Institute of Scrap Iron & Steel.

Source: U. S. Bureau of Mines, and Institute of Scrap Iron and Steel



Data by Institute of Scrap Iron & Steel, Inc.

COMPOSITE PRICE OF NO. 1 HEAVY MELTING SCRAP

Average of Iron Age scrap prices, Pittsburgh, Chicago, Phila., Per Gross Ton

	1937	1939	1940	1941*	1944*	1945		1946	1947	1948	1949	1950	1951
Jan.	\$18.33	\$14.94	\$17.58	\$20.88	\$19.17	\$19.17	Jan.	\$19.17	\$31.00	\$40.81	\$41.36	\$26.58	\$46.15
Feb.	19.27	15.01	16.88	20.88	19.17	19.17	Feb.	19.17	33.31	40.35	38.21	27.25	44.19
Mar.	21.25	15.20	16.58	20.29	19.17	19.17	Mar.	19.17	38.85	40.00	35.43	28.05	43.00
Apr.	21.02	14.77	16.14	19.22	19.17	19.17	Apr.	19.17	33.85	40.31	23.86	29.04	43.00
May	18.54	14.17	17.60	19.17	19.17	19.05	May	19.17	29.61	40.80	22.67	33.40	43.00
June	17.28	14.71	19.31	19.17	19.17	19.00	June	19.17	32.79	40.58	20.78	39.29	43.00
July	15.75	14.92	18.47	19.17	19.17	19.17	July	19.17	37.95	41.60	19.33	37.23	43.00
Aug.	20.43	15.43	18.72	19.17	19.10	19.17	Aug.	19.17	39.48	43.16	20.85	39.85	43.00
Sept.	18.73	18.32	19.91	19.17	17.87	19.17	Sept.	19.17	37.77	43.16	25.67	40.69	43.00
Oct.	15.89	21.48	20.63	19.17	15.87	19.17	Oct.	19.17	40.50	43.16	26.40	40.67	42.50
Nov.	13.34	19.68	20.83	19.17	16.54	19.17	Nov.	23.34	41.21	43.04	29.98	40.98	42.00
Dec.	13.46	18.05	21.42	19.17	19.04	19.17	Dec.	28.23	40.00	43.00	27.18	44.02	42.00

Average 18.03 16.39 18.67 19.49 18.55 19.15

* Price unchanged at \$19.17 throughout 1942 and 1943.

Average 20.27 36.38 41.65 27.56 24.75 43.15

U. S. COAL PRODUCTION

In Short Tons, Bituminous, Anthracite

	Bituminous	Anthracite
1931	382,089,396	58,645,652
1932	309,709,672	49,866,221
1933	333,630,633	49,541,344
1934	359,368,022	57,168,291
1935	372,373,122	62,158,783
1936	439,087,903	64,579,635
1937	445,531,449	61,586,433
1938	348,544,764	46,099,027
1939	394,855,325	61,487,377
1940	480,771,500	61,484,640
1941	514,149,245	56,368,267
1942	582,892,837	60,327,729
1943	590,177,069	60,643,620
1944	619,576,240	63,701,363
1945	577,617,327	54,933,909
1946	533,922,068	60,506,673
1947	630,623,722	57,190,009
1948	599,518,229	57,139,948
1949	437,868,038	42,701,724
1950	512,000,000	44,076,703

Source: U. S. Bureau of Mines

U. S. COAL CONSUMPTION

In Short Tons, Bituminous, Anthracite

	Bituminous	Anthracite
1931	371,869,000	58,400,000
1932	306,917,000	50,500,000
1933	321,748,000	49,600,000
1934	347,043,000	55,500,000
1935	380,292,000	61,100,000
1936	422,795,000	63,200,000
1937	432,603,000	60,400,000
1938	338,086,000	45,200,000
1939	377,773,000	49,700,000
1940	432,757,000	49,000,000
1941	494,088,000	52,700,000
1942	642,214,000	56,800,000
1943	598,164,000	57,100,000
1944	591,830,000	59,400,000
1945	559,567,000	61,600,000
1946	500,386,000	63,900,000
1947	657,243,000	48,200,000
1948	636,672,000	50,200,000
1949	445,538,000	37,700,000
1950	453,830,000	39,900,000

Source: U. S. Bureau of Mines

U. S. COAL EXPORTS

In Short Tons, Bituminous, Anthracite

	Bituminous	Anthracite
1931	12,126,299	1,778,508
1932	8,814,047	1,303,368
1933	9,036,947	1,034,562
1934	10,868,632	1,297,810
1935	9,742,430	1,606,849
1936	10,654,959	1,675,054
1937	13,144,678	1,914,171
1938	10,490,269	1,908,911
1939	11,590,478	2,890,000
1940	16,465,928	2,667,632
1941	20,740,471	3,380,189
1942	22,943,305	4,438,686
1943	25,838,208	4,136,696
1944	26,032,348	4,185,935
1945	27,941,867	3,691,247
1946	41,208,678	6,506,629
1947	68,666,963	8,606,965
1948	48,930,133	6,675,914
1949	27,842,086	4,942,873
1950	28,468,403	3,691,569
1951 ¹	40,450,755	3,647,948

¹ 9 Months.

Source: U. S. Bureau of Mines

Coke: Steel plant, merchant and beehive oven production . . . Blast furnace coke receipts . . . Foundry, furnace coke prices.

RAW MATERIALS

PRODUCTION OF COKE IN THE U. S.

In Net Tons, Beehive and Byproduct Cokes

By-Product

	Beehive	Merchant Plants	Furnace Plants	Total	Total
1929	6,472,019	12,187,439	41,224,367	53,411,826	59,883,845
1930	2,776,316	11,989,651	33,206,054	45,195,705	47,972,021
1931	1,126,337	11,538,309	20,817,240	32,355,549	33,483,886
1932	651,888	9,782,471	11,374,371	21,136,842	21,788,730
1933	911,058	10,533,968	16,144,188	26,678,136	27,589,194
1934	1,028,765	11,550,961	19,241,850	30,792,811	31,821,578
1935	917,208	11,189,792	23,034,281	34,224,053	35,141,261
1936	1,706,063	12,493,032	32,076,089	44,569,121	46,275,184
1937	3,184,721	13,076,539	36,134,209	49,210,748	52,375,469
1938	837,412	10,989,525	20,668,878	31,656,403	32,495,815
1939	1,444,328	11,070,506	31,811,807	42,882,313	44,326,641
1940	3,057,825	12,549,132	41,465,177	54,014,309	57,072,134
1941	6,704,156	13,494,509	44,967,913	58,482,422	65,186,578
1942	8,274,035	15,134,866	47,160,043	62,294,909	70,568,944
1943	7,933,387	14,750,033	48,992,843	63,742,678	71,676,063
1944	6,973,022	14,144,951	52,919,844	67,064,795	74,037,817
1945	5,213,893	13,399,116	48,695,172	62,094,288	67,308,181
1946	4,568,401	12,388,485	41,540,962	53,929,447	56,497,848
1947	6,687,301	13,897,699	52,860,850	66,756,549	73,445,850
1948	6,577,571	13,332,499	54,951,888	68,284,357	74,861,928
1949	3,414,948	12,112,922	48,109,559	60,222,491	63,637,428
1950	5,827,420	12,346,822	54,543,794	66,899,616	72,718,038
1951*	5,497,743	9,905,635	43,767,256	53,672,889	59,170,632

* Nine months only.

Source: U. S. Bureau of Mines

BLAST FURNACE COKE RECEIPTS

In Short Tons

	By-Product	Total, By-Product and Beehive
1929	37,731,610	40,952,638
1930	40,577,086	45,468,149
1931	31,413,599	33,037,680
1932	18,448,988	18,916,535
1933	8,766,116	8,867,686
1934	13,110,485	13,262,408
1935	15,857,087	16,027,682
1936	20,815,386	20,934,621
1937	30,228,314	30,772,156
1938	34,730,491	36,751,969
1939	18,755,989	19,070,186
1940	30,640,220	31,498,587
1941	40,057,325	42,483,624
1942	44,646,004	50,434,325
1943	48,360,913	55,491,670
1944	50,885,639	57,690,160
1945	51,670,789	57,481,353
1946	46,910,622	51,002,921
1947	40,408,056	43,700,492
1948	52,268,441	57,636,505
1949	53,933,343	59,288,806
1950	48,653,621	51,514,653
1951	55,661,298	60,918,549

Source: Bureau of Mines

CONNELLVILLE FURNACE COKE

Net Ton at Oven, Monthly Review

CONNELLVILLE FOUNDRY COKE

Net Ton at Oven, Monthly Review

	1939	1940	1941*	1943*	1944	1945
Jan.	\$4.75	\$5.50	\$5.75	\$6.88	\$8.06	\$8.25
Feb.	4.75	5.31	5.75	7.13	8.25	8.25
Mar.	4.75	5.25	5.85	7.38	8.25	8.25
Apr.	4.75	5.25	5.82	7.38	8.25	8.25
May	4.75	5.25	6.72	7.44	8.25	8.47
June	4.75	5.25	6.68	7.50	8.25	9.00
July	4.75	5.25	6.88	7.50	8.25	9.00
Aug.	4.75	5.25	6.88	7.50	8.25	9.00
Sept.	5.12	6.25	6.88	7.50	8.25	9.00
Oct.	5.65	5.25	6.88	7.50	8.25	9.00
Nov.	5.75	5.68	6.88	7.50	8.25	9.00
Dec.	5.75	5.75	6.88	7.50	8.25	9.00
Average	5.02	5.35	6.49	7.39	8.24	8.71

	1948	1947	1946	1949	1950	1951
Jan.	\$9.00	\$8.50	\$14.00	\$16.94	\$15.75	\$17.25
Feb.	9.00	9.38	14.00	16.75	15.75	17.25
Mar.	9.00	10.25	14.00	16.50	16.25	17.50
Apr.	9.00	10.65	14.00	16.50	16.25	17.75
May	9.00	11.25	14.00	16.38	16.25	17.75
June	9.00	11.25	16.00	16.25	16.25	17.75
July	9.68	12.75	16.50	16.13	16.25	17.75
Aug.	8.50	13.75	17.00	15.75	16.25	17.75
Sept.	8.50	13.75	17.00	15.75	16.25	17.75
Oct.	8.50	13.94	17.00	15.75	16.75	17.75
Nov.	8.50	14.00	17.00	15.75	16.75	17.75
Dec.	8.50	14.00	17.00	15.75	17.12	17.75
Average	8.85	11.96	15.62	16.18	16.32	17.65

* Price unchanged at \$6.88 throughout 1942.

	1939	1940	1941	1942	1943*	1945*
Jan.	\$3.75	\$4.20	\$5.50	\$6.13	\$6.00	\$7.00
Feb.	3.75	4.00	5.50	6.00	6.25	7.00
Mar.	3.75	4.00	5.52	6.00	6.50	7.00
Apr.	3.75	4.00	5.63	6.00	6.50	7.00
May	3.75	4.00	6.00	6.00	6.50	7.15
June	3.75	4.00	6.13	6.00	6.50	7.50
July	3.75	4.20	6.13	6.00	6.50	7.50
Aug.	3.75	4.63	6.13	6.00	6.50	7.50
Sept.	4.25	4.75	6.13	6.00	6.50	7.50
Oct.	4.90	4.75	6.13	6.00	6.50	7.50
Nov.	5.00	5.10	6.13	6.00	6.50	7.50
Dec.	5.00	5.38	6.13	6.00	6.80	7.50
Average	4.09	4.42	5.92	6.01	6.45	7.30

	1946	1947	1948	1949	1950	1951
Jan.	\$7.50	\$8.75	\$12.50	\$16.56	\$14.00	\$14.25
Feb.	7.50	8.88	12.50	15.25	14.00	14.25
Mar.	7.50	9.00	12.50	14.50	14.13	14.50
Apr.	7.50	9.60	12.50	14.50	14.25	14.75
May	7.50	10.50	12.50	14.38	14.25	14.75
June	7.50	10.50	12.70	14.25	14.25	14.75
July	8.50	11.40	13.88	14.25	14.25	14.75
Aug.	8.75	12.00	14.75	14.25	14.25	14.75
Sept.	8.75	12.00	15.00	14.25	14.25	14.75
Oct.	8.75	12.38	15.00	14.25	14.25	14.75
Nov.	8.75	12.50	15.00	14.20	14.25	14.75
Dec.	8.75	12.50	15.00	14.00	14.25	14.75
Average	8.10	10.83	13.63	14.58	14.20	14.65

* Price unchanged at \$7.00 throughout 1944.

Source: U. S. Dept. of Commerce

U. S. FOREIGN COKE TRADE

In Short Tons

	Imports for Consumption	Exports
1929	1,238,035	119,724
1930	1,003,886	132,674
1931	794,302	103,563
1932	630,151	117,275
1933	637,819	160,873
1934	942,785	160,934
1935	613,975	317,379
1936	670,312	329,957
1937	526,683	286,364
1938	486,571	135,240
1939	589,925	141,911
1940	804,095	112,550
1941	708,971	267,886
1942	839,582	108,782
1943	994,607	98,127
1944	886,835	63,004
1945	1,478,746	51,964
1946	1,231,327	52,188
1947	835,059	104,093
1948	708,190	161,400
1949	548,295	277,507
1950	397,846	437,585
1951 (7 months)	458,610	90,587

Source: U. S. Dept. of Commerce

BLAST FURNACE COKE

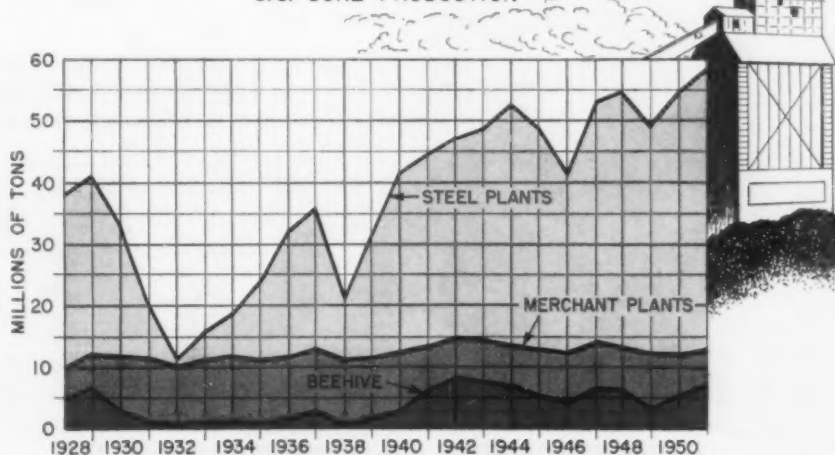
Consumption in Short Tons

1930	19,035,270
1931	31,422,272
1932	41,839,039
1933	49,469,972
1934	54,694,746
1935	56,701,419
1936	57,071,889
1937	60,653,221
1938	43,176,769
1939	57,147,644
1940	59,128,129
1941	81,356,617
1942	61,033,227
1943	66,532,757

* Estimate by THE IRON AGE.

Source: American Iron & Steel Institute

U. S. COKE PRODUCTION



MANGANESE ORE, U. S. IMPORTS FOR CONSUMPTION

In Short Tons, Manganese Content, Totals Include Small Producers, Not Listed

	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951*
Angola.....								2,466	7,906	3,461
Belgian Congo.....	1,546	9,075	7,644			1,608	1,371	3,191	1,056	2,240
Brazil.....	147,908	168,234	88,899	115,916	38,985	70,234	71,561	88,164	60,463	20,811
Chile.....	2,113	7,893	2,885	42,699	65,222	19,930	4,927	6,836	3,748	9,148
Cuba.....	73,098	101,789	223,392	140,325	77,469	26,893	15,931	27,337	46,883	33,244
Egypt.....								24,272	13,340	
France.....								101	1,289	
French Morocco.....								185	11,419	7,890
Gold Coast.....	95,698	112,700	82,406	108,747	144,275	112,102	112,503	138,566	134,460	103,947
Greece.....										1,329
India.....	301,777	231,596	172,385	103,586	180,958	140,007	152,852	172,503	314,907	37,725
Iran.....										1,428
Mexico.....	16,270	26,682	35,610	22,240	18,570	22,605	23,894	23,769	18,390	15,421
Mozambique.....								283		
Philippines.....						1,141	5,099	6,944	2,663	3,130
So. Africa.....								3		
Turkey.....										5,960
Union of South Africa.....	110,093	58,812	19,028	29,544	113,037	87,154	130,114	131,319	218,115	125,777
United Kingdom.....								31		
U.S.S.R.....	9,200	2,341		70,082	121,753	141,975	162,455	71,357	31,031	1,282
W. Portuguese Africa, N.E.S.....										
Total Imports†.....	766,399	729,305	633,197	633,859	740,277	624,431	702,211	673,688	874,201	385,577*

* Seven months.

† Total import figures include small imports from minor producing countries not otherwise listed.

Source: Dept. of Commerce

U. S. MANGANESE ORES

Shipped by U. S. mines, Metallurgical*

State	1940	1942	1943	1944	1945
Ala.....	64	26		49	32
Ariz.....	348	2,946	5,779	8,519	1,093
Ark.....	6,808	4,132	5,319	7,106	8,663
Calif.....	177	10,112	20,804	21,540	1,688
Colo.....	251	513	707		
Ga.....	4,001	4,890	2,467	1,135	1,066
Idaho.....			36		
Mo.....		239	180		
Mont.....	9,218	120,409	130,789	153,685	143,888
Nev.....	235	6,112	10,451	21,799	960
N. Mex.....	50	1,267	469	273	3,334
N. C.....			140		
Okl.....		31	265		
Oreg.....		45	143		
S. C.....			312	1,400	41
So. Dak.....		81	12		
Tenn.....	7,821	2,247	2,501	418	
Utah.....	30	970	91	30	
Va.....	1,168	11,024	7,040	20,034	8,566
Wash.....		10,680	7,731	5,199	6,994
W. Va.....	245	2,240			
Wyo.....			60		
Total.....	30,416	177,986	195,096	241,170	174,295

State	1946	1947	1948	1949	1950
Ala.....					138
Ariz.....		133	240	223	222
Ark.....	1,101	841	212	2,051	1,224
Calif.....				280	37
Colo.....					
Ga.....					
Idaho.....					
Mo.....					
Mont.....	129,227	123,490	119,339	107,399	119,694
Nev.....	1,084	67			
N. Mex.....	1,166	858			1,320
N. C.....					
Okl.....					
Oreg.....					
S. C.....	78				
So. Dak.....					
Tenn.....		39	37	175	133
Utah.....					120
Va.....	321				56
Wash.....	1,424				
W. Va.....					
Wyo.....					
Total.....	134,351	123,426	119,820	110,928	122,944

* In short tons.

Source: U. S. Bureau of Mines

WORLD PRODUCTION OF MANGANESE ORE

In Metric Tons, Includes Pct Manganese, World Total, Through 1950

	Percent Mn	1943	1944	1945	1946	1947	1948	1949	1950
U.S.S.R. (estimate).....	41-48	1,000,000	461,000	2,251,000	1,700,000	1,800,000	1,900,000	1,500,000	2,000,000
Gold Coast.....	50†	534,362 ⁴	479,499 ⁴	713,013 ⁴	777,883 ⁴	598,655 ⁴	640,088 ⁴	752,963	711,416
India.....	47-52	604,922	376,251	213,602	256,975	350,000	318,220 ⁵	656,190	679,163 ¹
Union of South Africa.....	30-51	219,122	106,883	114,546	237,897	288,213	278,393	655,175	790,937
Brazil (exports).....	38-50	275,552	146,983	244,649	149,149	142,092	141,253	149,896	162,600
United States (shipments).....	35†	186,129	224,632	165,412	130,303	119,409	118,931	114,427	127,188
Morocco, French.....	32-50	49,010	27,580	45,292	57,080	109,452	214,412	233,830	267,265
Cuba.....	36-50†	311,214 ⁴	257,864 ⁴	198,243	130,764	50,397	29,073	62,503	76,903
Japan.....	32-40	342,884	400,679	85,700	29,394	33,194	47,500	100,000	134,094
Mexico.....	41-45	70,503	80,671	51,959	25,000	31,400	53,800	53,900 ⁷	32,400 ⁷
Chile.....	40-50	114,074	43,989	7,445	20,538	19,352	20,498	27,756	24,523
World total ¹		4,040,000	2,900,000	4,260,000	3,700,000	3,800,000	3,900,000	4,306,640	5,028,461

¹ Total world production figures include production of smaller producing countries not otherwise listed and estimates by the Bureau of Mines for countries not reporting.

² Preliminary figures.

³ Estimate excludes Ukraine.

⁴ Dry weight.

⁵ Exports.

⁶ Data not available, estimate included in total.

⁷ Estimate.

Source: U. S. Bureau of Mines

SHIPMENTS OF MANGANIFEROUS ORES

By U. S. Producers in Short Tons, Metallurgical and Battery Ores

Year	Metallurgical Ore				Battery Ore (35 Pct or more Mn)
	Manganese Ore (35 Pct or more Mn)	Ferruginous Manganese Ore (10 to 35 Pct Mn)	Manganiferous Iron Ore (5 to 10 Pct Mn)	Manganiferous Zinc Residue	
1939.....	20,810	288,289	826,087	144,747	8,699
1940.....	30,416	358,406	914,526	172,990	10,883
1941.....	73,852	612,182	918,725	282,049	11,899
1942.....	177,986	265,663	1,500,613	292,061	15,410
1943.....	195,096	468,662	1,251,275	270,328	12,704
1944.....	241,170	296,981	1,190,476	247,402	8,224
1945.....	174,295	114,327	1,406,527	224,331	8,042
1946.....	134,351	100,402	1,070,694	205,766	8,296
1947.....	123,426	126,862	1,044,961	227,647	8,180
1948.....	119,820	139,680	1,108,523	201,333	10,845
1949.....	110,928	24,885	1,052,231	158,902	14,983
1950.....	122,944	115,289	972,320	183,842	11,507

* Includes 2,731 tons containing 27 pct Mn.

Source: U. S. Bureau of Mines

Prices, output, shipments: Ferrosilicon, chromite, ferromanganese, spiegeleisen.

RAW MATERIALS

FERROMANGANESE, 80 PCT

Eastern Producers, Carloads, Gross Ton

	1934	1936	1937	1938	1939	1940
Jan.	\$85.00	\$75.00	\$80.00	\$102.50	\$85.00	\$100.00
Feb.	85.00	75.00	80.00	102.50	80.00	100.00
Mar.	85.00	75.00	89.00	102.50	80.00	100.00
Apr.	85.00	75.00	95.00	102.50	80.00	100.00
May	85.00	75.00	102.50	102.50	80.00	100.00
June	85.00	75.00	102.50	102.50	80.00	110.00
July	85.00	75.00	102.50	92.50	80.00	120.00
Aug.	85.00	75.00	102.50	92.50	80.00	120.00
Sept.	85.00	75.00	102.50	92.50	95.00	120.00
Oct.	85.00	75.00	102.50	92.50	100.00	120.00
Nov.	85.00	80.00	102.50	92.50	100.00	120.00
Dec.	85.00	80.00	102.50	92.50	100.00	120.00
Average	85.00	75.83	96.84	97.50	86.67	110.84

50 PCT FERROSILICON

Carloads per Gross Ton, Delivered*

	1937*	1939	1940**	1943*	1944	1945
Jan.	\$69.50	\$69.50	\$69.50	\$74.50	\$6.65	\$6.65
Feb.	69.50	69.50	69.50	74.50	6.65	6.65
Mar.	69.50	69.50	69.50	74.50	6.65	6.65
Apr.	69.50	69.50	69.50	74.50	6.65	6.65
May	69.50	69.50	69.50	74.50	6.65	6.65
June	69.50	69.50	72.00	74.50	6.65	6.65
July	69.50	69.50	74.50	6.65	6.65	6.65
Aug.	69.50	69.50	74.50	6.65	6.65	6.65
Sept.	69.50	69.50	74.50	6.65	6.65	6.65
Oct.	69.50	69.50	74.50	6.65	6.65	6.65
Nov.	69.50	69.50	74.50	6.65	6.65	6.65
Dec.	69.50	69.50	74.50	6.65	6.65	6.65
Average	69.50	69.50	72.11	6.65	6.65	6.65

SPIEGELEISEN, 19 TO 21 PCT.

Palmerton, Pa., Carloads, Gross Ton

	1933	1936	1937	1938	1939	1940*
Jan.	\$24.00	\$26.00	\$26.00	\$33.00	\$28.00	\$32.00
Feb.	24.00	26.00	26.00	33.00	28.00	32.00
Mar.	24.00	26.00	26.00	33.00	28.00	32.00
Apr.	24.00	26.00	30.00	33.00	28.00	32.00
May	24.00	26.00	32.25	33.00	28.00	32.00
June	24.00	26.00	33.00	33.00	28.00	34.40
July	27.00	26.00	33.00	28.00	28.00	36.00
Aug.	27.00	26.00	33.00	28.00	28.00	36.00
Sept.	27.00	26.00	33.00	28.00	31.00	36.00
Oct.	27.00	26.00	33.00	28.00	32.00	36.00
Nov.	27.00	26.00	33.00	28.00	32.00	36.00
Dec.	27.00	26.00	33.00	28.00	32.00	36.00
Average	25.50	26.00	31.14	30.50	29.25	34.20

* Seaboard price prior to October 7, 1948.

* Price unchanged at \$120.00 through 1941.

** Price unchanged at \$135.00 from 1943 through 1946.

* Cents per lb. of contained Si, since July 1943. Delivered east of Mississippi only, prior to October 7, 1948.

* Price unchanged at \$69.50 throughout 1938.

** Price unchanged at \$74.50 throughout 1941 and 1942.

* Price unchanged at \$36.00 from 1941 through 1945.

WORLD PRODUCTION OF CHROMITE

In Metric Tons

	1943	1944	1945	1946	1947	1948	1949	1950
Union of South Africa	163,232	88,909	99,090	212,253	373,094	412,783	404,351	496,324
U.S.S.R.	325,000	300,000	300,000	300,000	500,000	600,000	350,000 ¹	500,000
Philippines, Republic of	60,000 ¹	70,000 ¹	(3)	58,930	195,165	256,854	246,744	250,511 ⁴
Cuba	354,182	192,131	172,626	174,380	159,209	116,624	97,368	117,358
Southern Rhodesia	287,453	277,051	166,318	151,433	155,149	230,703	243,506	291,525
Turkey	154,512	162,100	146,716	103,167	102,875	285,353	434,117	350,000
New Caledonia	46,952	55,229	58,828	24,946	50,530	75,021	88,792	(3)
India	33,799	40,190	31,642	45,511	35,274	22,917	19,728	(3)
Sierra Leone	16,306	9,851	578	10,301	16,769	7,886	22,101	(3)
Greece	15,500	18,295	2,413	9,062	2,640	1,500	3,381	12,631
Cyprus (exports)	7,886	469	1,070	1,158	5,263	6,899	14,875	(3)
Yugoslavia ¹	65,000	10,000	6,000	68,000	55,000	65,000	93,000	100,000
Bulgaria	5,000	5,000	(3)	(3)	(3)	(3)	(3)	(3)
Canada	26,848	24,543	5,221	2,821	1,961	1,556	347	(3)
Japan ⁵	58,520	71,135	28,530	7,079	2,407	9,340	27,003	31,953
United States	145,259	41,394	12,676	3,726	860	3,283	393	367
Albania	31,091 ¹	(3)	(3)	(3)	(3)	16,500 ¹	(3)	(3)
Brazil (exports)	7,813	4,721	1,490	174	(2)	1,626	(3)	(3)
Total World Production ¹	1,825,000	1,400,000	1,100,000	1,200,000	1,700,000	2,150,000	2,100,000	2,300,000

¹ Estimate.

² Planned production.

³ Data not available; estimates by Bureau of Mines included in total.

⁴ Exports.

⁵ Preliminary.

⁶ Jan. to Sept. inclusive.

Source: U. S. Bureau of Mines

CHROMITE IMPORTS FOR CONSUMPTION

In Short Tons, Cr₂O₃ Content, By U. S.

	1944	1945	1946	1947	1948	1949	1950	1951*
Brazil	2,008	1,272			860			
British West Africa			14,164	8,968	3,481	4,122	4,637	1,364
Canada	9,533	1,804	4,090	34	82		365	
Cuba	123,504	103,482	73,129	59,399	57,813	32,221	4,693	
Cyprus					2,509			
French Pacific Isles							30,198	16,026
Guatemala							378	
India			8,500	5,065		3,837	850	1,708
Mozambique							6,910	1,193
New Caledonia	16,458	17,806	11,326	10,185	24,884	36,969		
Pakistan							3,992	
Philippines			10,469	71,793	81,689	102,008	28,947	1,364
Southern Rhodesia	90,251	104,048	47,228	36,402	59,620	44,531	62,338	45,459
Turkey	47,810	34,829	4,329	28,854	119,646	131,634	91,889	68,749
Union of South Africa	17,754	48,265	105,831	118,446	133,498	122,001	17,712	13,626
U.S.S.R.	57,816	86,378	53,391	136,021	190,118	51,424	31,067	
Yugoslavia				10,824	5,863	4,844	4,367	5,590
Total Imports	365,694	400,742	332,456	485,991	680,723	533,591	281,433	155,815

* Seven Months.

Source: Dept. of Commerce

CHROMITE ORE SHIPMENTS

In Short Tons, Shipments by U. S. Mines

	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
	92,322	5,688	2,802	316	398	254	323	121	158	225	739	301	90	300	174	944	413			
	577	301	2,600	909	4,048	2,992	14,258	112,870	180,120	45,829	13,873	4,107	848	3,619	433	404	1,287*			

* Nine months.

Source: Bureau of Mines



RAW MATERIALS

Output prices: Spiegeleisen, refractory brick, ferrosilicon, and ferromanganese.

PRODUCTION OF SPIEGELEISEN

In Short Tons, U. S. Output

1931.....	75,936	1942.....	186,026
1932.....	41,795	1943.....	149,036
1933.....	29,885	1944.....	165,530
1934.....	51,261*	1945.....	139,039
1935.....	106,553	1946.....	111,696
1936.....	151,181*	1947.....	134,329
1937.....	12,688	1948.....	112,610
1938.....	102,470	1949.....	78,167
1939.....	114,119	1950.....	42,375
1940.....	177,915	1951.....	56,524**

* Shipments from mines.

** Nine Months.

Source: U. S. Bureau of Mines

FERROMANGANESE SHIPMENTS

By U. S. Furnaces, in Short Tons

1932.....	78,867	1942.....	659,219
1933.....	142,747	1943.....	722,658
1934.....	165,701	1944.....	715,059
1935.....	217,982	1945.....	610,376
1936.....	361,035	1946.....	493,808
1937.....	403,023	1947.....	614,647
1938.....	250,566	1948.....	659,193
1939.....	322,227	1949.....	560,180
1940.....	503,291	1950.....	731,421
1941.....	619,395	1951.....	633,518*

* Nine Months.

Source: U. S. Bureau of Mines

CHEMICALLY BONDED MAGNESITE BRICK

Per Short Ton, Baltimore, F.o.b. Plant

	1941*	1947*	1948	1949	1950	1951
Jan.....	\$61.00	\$65.00	\$75.00	\$80.00	\$80.00	\$81.00
Feb.....	61.00	65.00	75.00	80.00	80.00	81.00
Mar.....	61.00	69.00	75.00	80.00	80.00	81.00
Apr.....	61.00	70.00	75.00	80.00	80.00	81.00
May.....	61.00	70.00	75.00	80.00	80.00	81.00
June.....	62.00	70.00	75.00	80.00	80.00	81.00
July.....	65.00	70.00	76.00	80.00	80.00	80.00
Aug.....	65.00	70.00	80.00	80.00	83.00	83.00
Sept.....	65.00	70.00	80.00	80.00	83.00	83.00
Oct.....	65.00	70.00	80.00	80.00	86.00	86.00
Nov.....	65.00	70.00	80.00	80.00	86.00	86.00
Dec.....	65.00	74.00	80.00	80.00	86.00	86.00
Average...	63.00	69.00	77.00	80.00	82.00	83.00

* Price unchanged at \$65.00 from 1942 through 1949

FERROSILICON IMPORTS FOR CONSUMPTION

In Short Tons, Silicon Content

1934.....	1,102	1943.....	901
1935.....	875	1944.....	4,189
1936.....	590	1945.....	7,191
1937.....	2,269	1946.....	1,331
1938.....	701	1947.....	2,141
1939.....	1,160	1948.....	734
1940.....	1,235	1949.....	931
1941.....	6,190	1950.....	3,785
1942.....	4,337	1951.....	8,646*

* Nine Months.

Source: U. S. Bureau of Mines

FERROSILICON PRODUCTION

By U. S. Furnaces, in Short Tons

1935.....	294,856*	1944.....	700,358
1936.....	329,774	1945.....	660,403
1937.....	405,989	1946.....	614,422
1938.....	279,808	1947.....	769,653
1939.....	313,560	1948.....	614,297
1940.....	409,699	1949.....	647,981
1941.....	618,227	1950.....	742,407
1942.....	712,710	1951.....	675,916†
1943.....	818,351		

* Shipments.

† Nine Months.

Source: U. S. Bureau of Mines

FIRST QUALITY FIRE CLAY BRICK

Pa.,* Ky., Mo., Ill., Md., Ohio, F.o.b. Plant**

	1945‡	1946	1947	1948§	1950	1951
Jan.....	\$51.30	\$54.40	\$65.00	\$73.00	\$86.00	\$94.00
Feb.....	51.69	54.40	65.00	73.00	86.00	94.00
Mar.....	52.85	54.40	65.00	73.00	86.00	94.00
Apr.....	52.85	58.90	66.00	73.00	86.00	94.00
May.....	52.85	60.40	70.00	73.00	86.00	94.00
June.....	52.85	60.40	70.00	73.00	86.00	94.00
July.....	52.85	60.40	70.00	74.00	86.00	94.00
Aug.....	52.85	60.40	70.00	80.00	86.00	94.00
Sept.....	54.45	60.40	70.00	80.00	86.00	94.00
Oct.....	54.44	64.08	70.00	80.00	91.16	94.00
Nov.....	54.40	65.00	70.00	80.00	94.60	94.00
Dec.....	54.40	65.00	72.00	80.00	94.60	94.00
Average...	53.13	59.85	69.00	76.00	88.03	94.00

‡ Price unchanged at \$51.30 from 1942 through 1944.

§ Price unchanged at \$60.00 through 1949.

** Add \$5.00 for Salina, Pa., after May 1949.

** Carloads, per 100 brick.

SILICA BRICK STANDARD GRADE PRICES

Mt. Union, Pa., Ensley, Ala., Carloads per 1000 Brick, F.o.b. plant

	1941†	1945†	1946	1947	1948	1949	1950	1951
January.....	\$47.50	\$61.30	\$54.40	\$65.00	\$73.00	\$80.00	\$86.00	\$94.60
February.....	47.50	51.69	54.40	65.00	73.00	80.00	86.00	94.60
March.....	47.50	52.85	54.40	65.00	73.00	80.00	86.00	94.60
April.....	47.50	52.85	58.90	66.00	73.00	80.00	86.00	94.60
May.....	47.50	52.85	60.40	70.00	73.00	80.00	86.00	94.60
June.....	48.45	52.85	60.40	70.00	73.00	80.00	86.00	94.60
July.....	51.30	52.85	60.40	70.00	74.00	80.00	86.00	94.60
August.....	51.30	52.85	60.40	70.00	80.00	80.00	86.00	94.60
September.....	51.30	54.45	60.40	70.00	80.00	80.00	86.00	94.60
October.....	51.30	54.44	64.08	70.00	80.00	80.00	91.16	94.60
November.....	51.30	54.40	65.00	70.00	80.00	80.00	94.60	94.60
December.....	51.30	54.40	65.00	72.00	80.00	80.00	94.60	94.60
Average.....	49.48	53.15	59.85	69.00	76.00	80.00	88.03	94.60

* Price unchanged at \$47.50 through 1940.

† Price unchanged at \$51.30 from 1942 through 1944.

‡ Tentative.

BURNED MAGNESITE BRICK

Baltimore, F.o.b. Plant, short ton

	1941*	1947*	1948	1949	1950	1951
Jan.....	\$72.00	\$76.00	\$86.00	\$91.00	\$91.00	\$104.00
Feb.....	72.00	76.00	86.00	91.00	91.00	104.00
Mar.....	72.00	80.00	86.00	91.00	91.00	104.00
Apr.....	72.00	81.00	86.00	91.00	91.00	104.00
May.....	72.00	81.00	86.00	91.00	91.00	104.00
June.....	73.00	81.00	86.00	91.00	91.00	104.00
July.....	76.00	81.00	87.00	91.00	91.00	104.00
Aug.....	76.00	81.00	91.00	91.00	93.40	104.00
Sept.....	76.00	81.00	91.00	91.00	94.00	104.00
Oct.....	76.00	81.00	91.00	91.00	97.00	104.00
Nov.....	76.00	81.00	91.00	91.00	99.00	104.00
Dec.....	76.00	85.00	91.00	91.00	99.00	104.00
Average.....	74.00	80.00	88.00	91.00	93.28	104.00

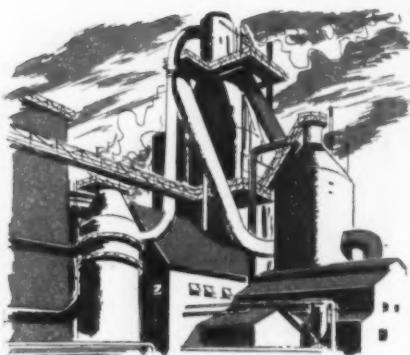
* Price unchanged at \$76.00 from 1942 through 1946.

CHEM. BONDED CHROME BRICK

Baltimore, F.o.b. Plant, Per Short Ton

	1941*	1947*	1948	1949	1950	1951
Jan.....	\$50.00	\$54.00	\$64.00	\$69.00	\$69.00	\$82.00
Feb.....	50.00	54.00	64.00	69.00	69.00	82.00
Mar.....	50.00	58.00	64.00	69.00	69.00	82.00
Apr.....	50.00	59.00	64.00	69.00	69.00	82.00
May.....	50.00	59.00	64.00	69.00	69.00	82.00
June.....	51.00	59.00	64.00	69.00	69.00	82.00
July.....	54.00	59.00	65.00	69.00	69.00	82.00
Aug.....	54.00	59.00	69.00	69.00	71.40	82.00
Sept.....	54.00	59.00	69.00	69.00	72.00	82.00
Oct.....	54.00	59.00	69.00	69.00	75.00	82.00
Nov.....	54.00	59.00	69.00	69.00	77.00	82.00
Dec.....	54.00	63.00	69.00	69.00	77.00	82.00
Average.....	52.00	59.00	66.00	69.00	71.28	82.00

* Price unchanged at \$54.00 from 1942 through 1946.



"The Industry View for '52" reports the opinions of some 890 metalworking executives on such subjects as controls, expansion, replacement, net profits and business volume expected for the coming year. You'll find it on p. 249.

The Iron Age

METAL INDUSTRY

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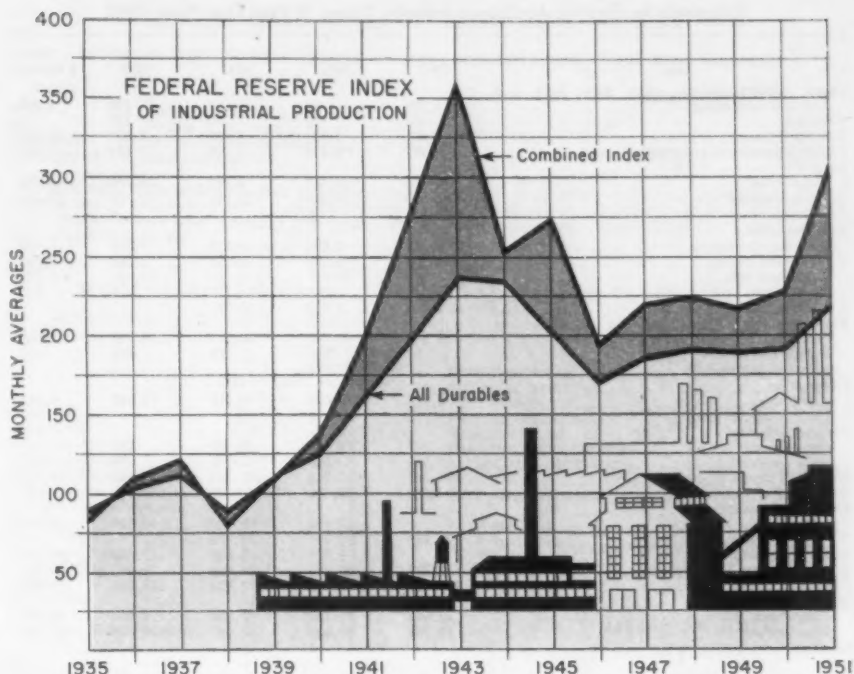
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METAL PRODUCTS

Steel used in automobiles and electrical appliances . . . Use of steel in homes

STEEL PRODUCTS USED IN ELECTRICAL APPLIANCES

Shipments to Electric Appliance Industry Shown in Net Tons From 1947

Item	1947	1948	1949	1950	1951 9 Months
Ingot, blooms, billets, slabs, sheet bars, and seamless tube rounds	2,092	99	7	236	1,192
Wire rods	465	178	142	127	1
Structural shapes	1,376	3,321	1,890	1,237	1,027
Plates (sheared and universal)	10,417	8,915	6,205	7,428	4,941
Bars:					
Hot-rolled	14,716	12,567	9,648	16,375	10,206
Cold-finished	44,412	53,609	33,941	47,163	29,738
Tool steel	38	19	4	3	
Pipe and tubes:					
Mechanical tubing	10,359	5,493	3,818	7,212	7,489
Pressure tubing		6,039	2,996	7,888	3,094
Standard pipe		13,567	8,756	12,380	8,932
Line pipe	16,371	382	114	459	135
Misc. tubular products		2,910	1,156		
Wire:					
Drawn	21,744	30,741	24,512	38,743	21,956
Nails and staples	47	559	269	472	215
Barbed and twisted		4			
Black plate:					
Ordinary	8,738	10,699	6,914	10,885	7,444
Chemically treated	12	8			
Tin and terplate:					
Hot dipped	1,237	1,696	1,470	861	640
Electrolytic	1,938	518	290	849	1,141
Hot-rolled sheets	307,067	363,015	197,268	301,818	186,107
Cold-rolled sheets	534,642	758,649	575,563	915,799	656,590
Galvanized sheets:					
Hot-dipped		39,696	29,149	74,126	45,078
Electrolytic	70,939	26,048	16,123		
Coated sheets—all other		2,423	2,008	21,285	66,740
Electrical sheets and strip	3,316	26,240	14,663	34,063	20,671
Enameling sheets	147,767	187,492	112,733	173,655	101,870
Strip:					
Hot-rolled	32,045	28,790	17,643	22,963	13,527
Cold-rolled	63,288	99,886	100,937	119,729	87,110
All other		3			
Total steel products	1,293,023	1,682,618	1,168,239	1,815,756	1,275,824

* IRON AGE estimate.

† Includes cooking stoves and ranges, refrigerators, washing machines and ironers, and other household appliances. Source: American Iron & Steel Institute

A lot of the steel that has been used in the products listed here will for some time be going into defense production. A list of the major metal products bought by the armed forces and location of buying offices is part of the special "Defense Controls Guide" insert in this issue. The guide also lists "M" orders and NPA forms.

USE OF STEEL IN HOMES

Some Steel Items In Six-Room House

	Lb.
Metal lath	1800
Gas, water and heating pipe	1200
Steel window frames (16 at 50 lb each)	800
Kitchen equipment	800
Stove, refrigerator, sink, table top, kitchen cabinets, ventilators, washing machine, steel tile	
Structural shapes and columns	600
Heating equipment	640
Steel furnace, hot water tank, fuel oil tank	
Nails and miscellaneous wire	600
Door frames and sills	480
Gutters and downspouts	475
Bathroom	300
Bathub, lavatory, medicine cabinet, shower cabinet, toilet (porcelain)	
Flashing and miscellaneous sheets	200
Steel doors (fire protection)	160
Electrical steel conduit	140
Hardware	90
Locks, knobs, hinges	
Radiator grilles	75
Screens	32
Laundry tubs	10
Total* Lb.	8482

* Some of the items may be lacking in some homes, or may be fashioned of other materials so that the total weight may be less than that which is given.

Source: American Iron & Steel Institute

STEEL USED IN A CONTAINER

Can Steel Weights

Can Types	Gross Weight Used, oz
Paint (1 gal)	15,908
Fruit juice (No. 10)	11,080
Lard (3 lb)	8,288
Vegetable (No. 5)	5,920
Fruit (No. 3)	5,344
Olive oil (square 1 qt)	4,960
Soup (No. 2)	3,808
Grease (1 lb)	3,776
Fish (Tuna No. 1)	3,168
Meat (Square 12 oz)	2,848
Fish (Sardine No. 1 flat)	2,800
Condensed milk	2,480
Baby food	1,888

Note: Can weights are finished weights of the steel content.

Source: American Iron & Steel Institute

STEEL USED BY AUTO INDUSTRY

Production Level Estimates

Number of Cars and Trucks Produced	Estimated Total Steel and Strip Required (net tons)	Estimated Total Steel, All Types Required (net tons)
4,000,000	4,420,000	7,180,000
5,000,000	5,820,000	8,980,000
6,000,000	6,630,000	10,780,000

Source: THE IRON AGE

STEEL FOR AUTOMOBILE PARTS

Bar, Sheet and Strip Requirements

Estimates by THE IRON AGE, based on reports of steel sizes ordered from the mill. Passenger cars differ greatly in size, weight and design. It is not practical to compute averages on the basis of the data given below. The tables, do, however, give an indication of the specific steel requirements of auto plants for certain applications. The tables were compiled from data furnished by several auto producers and their steel suppliers. Some auto parts, oil pans and bumpers, for example, are made of more than one type of steel and the steel may be ordered double width.

	Typical Width, Inches	Gross Weight, lb
Cold-rolled sheet and strip— 19 and 20 gage:		
Top	68-84	90-112
Hood top	43-72	60-80
Front fender	45-52	72-90
Rear fender	42	80
Quarter panel	45-50	72-90
Rear deck lid	39-47	44-62
Doors	35-50	36-54
Bumpers	15-24	36 Max.
Oil pan	24	9

	Typical Width, Inches	Gross Weight, lb
Hot-rolled sheet and strip— up to 18 gage:		
Floor pan, front	61-81	41-90
Floor pan, intermediate	55	37
Floor pan, rear	62-81	41-80
Oil pan	23-31	10-14
Frame	6-12 1/4	300-400
Wheel rims	7-9 1/2	
Bumpers	6 1/2-13	

Plain carbon hot-rolled bars

	Typical Diam. Ordered, in.
Rear axle	1 1/2
Spark plugs	7/8-1 1/8
Camshafts	1 1/4
Connecting rods	1 1/2
Motor support arm	1 1/2
Crankshaft sprocket	2 1/2-3

Other auto parts for which carbon hot-rolled bars are usually specified include: Miscellaneous formed and forged parts, steering mechanism parts, engine and clutch parts, etc.

Plain carbon cold-finished bars:

	Typical Diam. Ordered, in.
Transmission shafts	1 1/2-1 3/4
Transmission gear shift lever	1.0
Differential pinion shaft	0.750
Speedometer gear	2.0
Starter shaft	0.634
Spring shackle pins	0.489-1/2
Gear shifter shaft	1/2
Piston pins	1/4

Other applications include: Heater parts, brake cylinder parts, front brake flange bolt, miscellaneous clutch parts, oil pump bracket bolt, door handle insert, door handle shaft, rear spring pin, reverse idler shaft, oil pump drive shaft, stud for rear shock absorber, distributor shaft, window regulator pin and cam thrust plunger.

Hot-rolled alloy bars

	Typical Diam. Ordered, in.
Axle shafts	1 1/2-1 3/4
Steering knuckles	1 1/4-2 1/2
Steering arms	1 1/4-1 1/2
Transmission gears	1 1/2-1 3/4
Ring gears	3-4
Differential gears	1 1/2-2
Springs, coil	0.592-0.750
Springs, leaf	0.231-0.313x1 1/4
Universal joint	1 1/4-1 1/2
Propeller shafts	1 1/4
King pins	1-5/8
Rear axle drive pinion	1 1/2

Cold-finished alloy bars:

	Typical Diam. Ordered, in.
Transmission shafts	1 1/2
Piston pins	1/4
Oil pump drive shaft	1/2
Differential pinion	2 1/4

1 Weight of 2 parts.

2 Total weight inner and outer panel.

Materials used in a typical automobile, refrigerator, piano . . . Other steel uses.

METAL PRODUCTS

STEEL IN A REFRIGERATOR

Use In Parts, Assembled Units, Pounds

Outer shell:	
Cold-rolled sheet.....	83.67
Cold-rolled strip.....	4.16
Liner:	
Enameling sheet.....	30.10
Compressor:	
Cold-rolled sheet.....	13.19
Electrical sheet.....	7.48
Provision compartment door:	
Cold-rolled strip.....	2.30
Cold-rolled sheet.....	15.75
Evaporator:	
Stainless sheet.....	10.03
Machine compartment door:	
Cold-rolled sheet.....	9.80
Condenser:	
Cold-rolled strip (Rns).....	7.26
Steel tubing.....	1.80
Condensing unit base assembly:	
Hot-rolled strip.....	3.91
Vegetable pan:	
Enameling sheet.....	1.23
Door trim:	
Stainless strip.....	1.11
Base trim:	
Stainless steel.....	0.29
Total.....	171.66

Source: American Iron & Steel Institute

IRON, STEEL IN A PIANO

Gray Iron Castings, Other Types, Pounds

Gray iron castings.....	194.00
Blue tuning pins:	
224 tuning pins.....	8.75
Machine screw stock:	
10 lag screws.....	1.07
76 action screws.....	0.98
Wood screws.....	8.80
Piano wire:	
224 strings.....	6.13
Cold-rolled bar stock:	
3 nose bolts.....	1.55
Steel stampings.....	1.02
Coppered pins:	
448 bridge pins.....	0.82
Nickel plated pins.....	0.55
Action springs.....	0.43
Total.....	222.10

Source: American Iron & Steel Institute

STEEL USED IN A TYPICAL AUTOMOBILE

Estimates From Various Sources of Sheet and Strip, and Total Steel Content

Source	Sheet and Strip	Total Steel
AMA	Materials used in a typical car 1942.....	3385 lb.
AISI	Pounds of steel used in a typical car 1942.....	3544
Confidential	Estimated steel consumption for a typical car.....	2650*
GM Research	Steel in typical car.....	3320

* This figure is the minimum amount of steel that would be needed. It includes only the steel actually used. When ordering steel for its cars, the industry includes material to replace scrapped parts as well as certain replacement items such as fenders, doors and a small number of body panels. The amount of steel ordered per car included in a model run may reach 3400-3500 lb per car.

WHAT MAKES AN AUTO

Materials in a 1951 4-Door Sedan

	Total (3824 lb car) (lb)	Approximate Requirements per 1000 lb* (lb)
Steel, Net.....	2856	669
Steel, Gross.....	3320*	870
Gray Iron, Net.....	521	135
Gray Iron, Gross.....	641*	168
Malleable Iron, Net.....	99.6	26.0
Malleable Iron, Gross.....	122.5*	32.1
Aluminum and Alloys.....	11.4*	2.9*
Copper.....	26.0	6.8
Copper Alloys.....	15.6	4.08
Lead and Alloys.....	30.4	7.95
Zinc and Alloys.....	66.1	17.3
Antimony.....	1.1	.29
Manganese.....	18.8	4.9
Silicon.....	17.3	4.82
Chromium, Molybdenum and Nickel.....	7.2*	1.88*
Tin.....	1.37	.36
Fabric.....	92.3	24.2
Glass.....	76.3	20.0
Rubber Compounds.....	208.6	53.6
Plastics.....	5.2*	1.36*

1 Based on an estimated 30 pct scrap loss, believed to be a conservative estimate. Scrap losses on bodies as high as 39 pct have been reported.

2 Based on a 23 pct scrap loss.

3 These figures vary over a wide range according to the manufacturer's specifications.

* Data not included in McCuen's paper.

Source: C. L. McCuen, General Motors Research Laboratories

STEEL IN PASSENGER CAR

Pounds of Steel by Type

	Lb.
Hot-rolled bars.....	532
Cold-rolled bars.....	81
Wire products.....	187
Pipe and tubes.....	10
Structural shapes.....	30
Hot-rolled sheets and strip.....	1,852
Cold-rolled sheets and strip.....	964
Plates.....	48
Turnplate.....	43
Total.....	3,544

Source: American Iron & Steel Institute

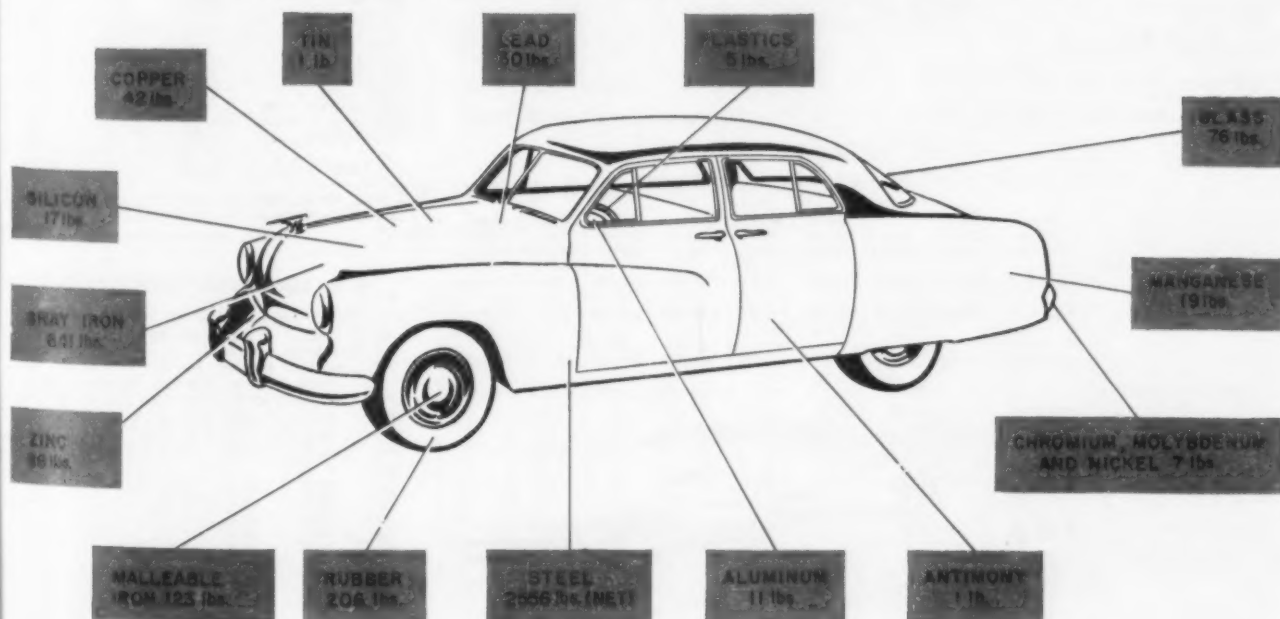
ALLOY STEELS IN AUTO

Typical Materials In Passenger Car

Part	Steels Used
Axle Shafts	T 1330, 8630, 4063, 8840, 8653-5160, 8160
Steering Knuckles and Arms	1340, 5130, 8840, 4053, 8630, 8150, 5130, 5150
Gears, Transmission	1340, 4032, 8620, 4620, 8125, 6120, TS 8620
Gears, Differential	8620, 4620, 6120
Springs, Coil and Leaf	4068, 9260, 5160, 8168
Bolts	1335, 4037, 4042, 3140, 8640, 8137, 40837

It is estimated that a typical passenger car uses from 260 to 280 lb of alloy steel.

MATERIALS USED IN TYPICAL 1951 FOUR-DOOR SEDAN



METAL PRODUCTS

Motor vehicle production by companies
... Steel shipped to the auto industry.

MOTOR VEHICLE PRODUCTION ESTIMATE

Estimated U. S. Output Listed By Companies

PASSENGER CARS	1947	1948	1949	1950	1951 Est.*
Chevrolet.....	695,993	775,989	1,109,958	1,520,577	1,120,000
Pontiac.....	223,015	253,489	333,954	467,685	345,000
Oldsmobile.....	191,454	194,756	282,885	396,757	286,000
Buick.....	267,830	275,504	399,482	552,627	410,000
Cadillac.....	59,436	66,209	81,545	110,535	101,000
Total Gen. Motors.....	1,437,728	1,565,926	2,206,824	3,048,351	2,262,000
Plymouth.....	350,327	377,797	575,071	573,166	600,000
Dodge.....	231,804	239,164	298,399	332,782	332,000
DeSoto.....	81,552	92,920	106,440	127,557	121,000
Chrysler.....	108,103	119,061	141,825	168,278	173,000
Total Chrysler.....	771,786	828,942	1,123,735	1,201,793	1,226,000
Ford.....	601,865	549,077	841,170	1,187,120	880,000
Mercury.....	124,612	154,702	203,339	334,081	240,000
Lincoln.....	29,276	43,688	33,132	35,485	26,000
Total Ford.....	755,552	747,467	1,077,641	1,556,686	1,146,000
Total Big Three.....	2,965,066	3,142,335	4,408,200	5,806,820	4,634,000
Crosley.....	19,588	27,902	8,942	7,612	5,700
Hudson.....	100,862	143,697	142,462	143,006	97,000
Kaiser-Frazer.....	144,507	181,316	57,995	146,911	103,000
Nash.....	113,315	118,621	142,592	189,543	160,000
Packard.....	55,477	98,898	104,593	72,098	61,000
Studebaker.....	123,641	166,755	228,402	268,099	226,000
Willys.....	33,336	32,701	32,874	30,052	26,000
Total Independents.....	590,726	769,880	717,860	865,321	.....
Total, Passenger Cars.....	3,555,792	3,912,215	5,126,060	6,672,141	5,380,000
MOTOR TRUCKS					
Chevrolet.....	335,346	389,690	383,543	494,573	420,000
GM Truck.....	61,918	92,677	83,840	110,528	129,000
Pontiac.....	.....	.....	2,490	.....	.....
Total Gen. Motors.....	397,264	482,367	469,873	605,101	549,000
Dodge.....	165,905	172,020	151,513	125,773	181,000
Ford.....	247,832	301,791	244,613	345,600	320,000
Total, Big Three.....	811,001	956,179	865,999	1,076,674	1,050,000
Crosley.....	3,055	2,673	375	.....	.....
Diamond T.....	16,205	12,684	5,545	8,841	8,700
Federal.....	10,114	3,898	1,649	1,907	2,700
Hudson.....	2,918	.....	.....	.....	.....
International.....	153,009	166,784	110,572	106,418	175,000
Mack.....	17,072	11,570	9,025	12,051	15,500
Nash.....	129	1,051	676	.....	.....
Reo.....	20,349	11,452	3,600	9,290	16,400
Studebaker.....	67,810	67,983	63,473	50,323	53,500
White-Indiana.....	18,479	12,507	8,707	14,638	16,400
Willys.....	86,397	104,889	49,973	48,906	100,000
Miscellaneous.....	30,162	17,703	12,544	.....	.....
Total, Independents.....	425,699	413,294	266,139	267,551	.....
Total Trucks.....	1,236,700	1,369,492	1,132,138	1,344,225	1,450,000
Total, Cars and Trucks.....	.....	.....	6,258,198	8,016,366	6,800,000
Canadian, Cars and Trucks.....	.....	.....	290,981	390,836	410,000
Total Vehicles, U. S. and Canada.....	.....	.....	6,549,179	8,407,202	7,210,000

* IRON AGE estimate based on 10 months' production.

Source: Ward's Automotive Reports

STEEL SHIPPED TO AUTO INDUSTRY

Net Ton Deliveries* for Cars, Trucks, Parts Makers

	Hot-Rolled Sheets	Cold-Rolled Sheets	Galvanized	All Other Coated Sheets	Elec. Sheets and Strips	Hot-Rolled Strip	Cold-Rolled Strip	Enamel-ing Sheets	Total Steel Products
Pass. cars, trucks and other commercial vehicles.....	769,982	2,490,601	8,524	71,533	6,347	196,977	197,572	31	5,272,303
Parts, accessories and supplies.....	1,061,108	1,076,058	16,331	26,989	4,629	286,405	266,536	886	4,166,317
Automotive forgings.....	.....	.....	.....	.....	.....	.....	.....	.....	387,310
Totals.....	1,831,091	3,566,659	24,855	98,522	10,976	483,382	464,108	897	9,825,930

* Nine Months 1951.

Source: American Iron & Steel Institute



AUTOMOBILE INDUSTRY WAGES

Employment and Average Earnings

	All Employees Number (thou-sands)	Number (thou-sands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1948	792.8	657.6	\$61.86	38.4	\$1.611
1949	769.0	643.5	65.97	38.9	1.696
1950	839.4	713.5	73.25	41.2	1.770
1951					
Jan.	897.6	767.3	71.48	38.7	1.847
Feb.	925.8	790.3	74.29	39.9	1.862
Mar.	935.6	793.4	76.13	40.3	1.880
Apr.	913.9	774.1	74.52	39.7	1.877
May	891.4	752.4	74.90	39.8	1.822
June	875.6	738.1	74.88	38.9	1.925
July	840.5	703.6	73.76	38.0	1.941
Aug.	833.9	696.3	76.98	39.6	1.944

Source: Bureau of Labor Statistics

LOCOMOTIVES ORDERED IN U. S.

Steam, Diesel and Electric

	Steam	Diesel-Electric	Diesel-Hy-draulic	Gas-turbine Electric	Total
1932..	5	7	0	.....	12
1935..	30	60	7	.....	97
1936..	435	77	24	.....	536
1937..	173	145	36	.....	354
1938..	36	100	29	.....	225
1939..	119	249	32	.....	400
1940..	207	492	13	.....	712
1941..	302	1,104	38	.....	1,444
1942..	363	894	12	.....	1,269
1943..	413	635	0	.....	1,048
1944..	74	680	3	.....	757
1945..	148	691	6	.....	845
1946..	55	969	8	.....	1,032
1947..	79	2,149	1	.....	2,229
1948..	54	2,661*	2	.....	2,717
1949..	13	1,795	10	.....	1,818
1950..	15	4,381	18	12	4,431
1951†	21	2,412	.....	.....	2,433

* 1948 Diesel orders shown as units. Previous orders shown as locomotives which may include one or more units
† Jan. through Nov.

Source: Railway Age

R. R. PASSENGER CARS

Steel Use In Tons Per Car

	Coach	Sleeper Roomette and Bedrooms	Baggage-Express
Billets.....	1.72	1.82	1.82
Shapes.....	4.84	4.84	4.77
Plates.....	5.79	5.79	6.11
Bars.....	2.84	2.84	2.88
Pipe-steel.....	.14	.19	.14
Sheets and strip.....	11.78	12.17	11.72
Wheels.....	3.80	3.80	3.80
Axles.....	1.70	2.05	2.05
Steel castings-body.....	.53	.53	.53
Steel castings-truck.....	4.89	5.17	5.17
Miscellaneous.....	.32	.32	.32
Totals.....	38.35	39.52	38.31

Note: Above covers cars with all-steel frame construction and aluminum and steel interior finish.

Source: American Railway Car Institute

R. R. EQUIPMENT EMPLOYMENT

Average Earnings by Week, Hour

	All Employees Number (thou-sands)	Number (thou-sands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1948	84.8	69.6	\$62.24	40.0	\$1.556
1949	76.1	61.0	63.54	39.2	1.621
1950	62.2	47.9	66.33	39.6	1.675
1951					
Jan.	66.3	52.1	72.41	41.0	1.766
Feb.	62.2	48.5	71.16	40.8	1.744
Mar.	68.6	54.1	75.13	41.1	1.829
Apr.	70.1	55.5	77.36	41.5	1.864
May	73.2	58.3	76.55	41.2	1.856
June	74.4	59.2	75.64	40.3	1.877
July	72.1	46.7	75.22	40.4	1.882
Aug.	72.6	56.8	75.52	40.0	1.888

Source: Bureau of Labor Statistics

Steel requirements for railroad freight cars . . . Farm machinery made in U. S.

METAL PRODUCTS

STEEL REQUIREMENTS FOR RAILROAD FREIGHT CARS

Steel Products Used in Principal Types of Cars, Net Tons

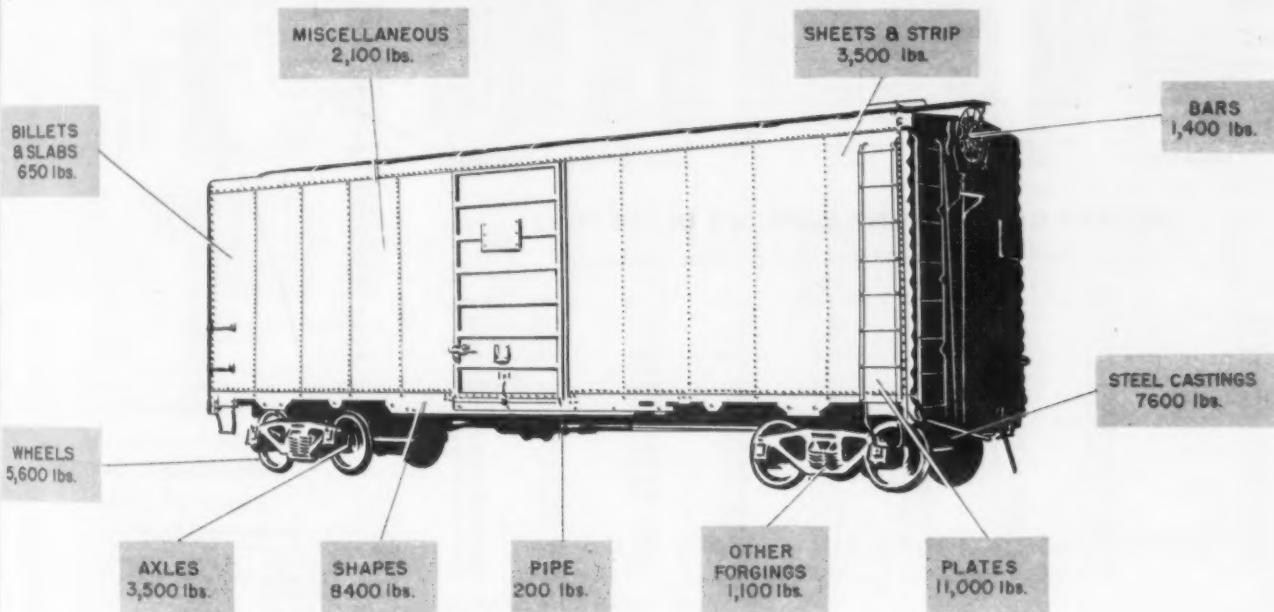
	Box 40' 6" 50-T	Box 50' 6" 50-T	Gen. H. S. 50-T	Gen. L. S. 70-T	Gen. 55' 70-T	Hopper 50-T	Hopper 70-T	Cov. Hopper 70-T	Ore	Flat 50-T	Flat 70-T	Refr. 40-T	Stock 40-T	Tank 10M-Gal ICC-103 50-T	Tank Hi-Press ICC-105 50-T	Average per Car Basis: Cars Delivered 1945-49
Billets and slabs.....	0.27	0.28	0.36	0.36	.....	0.35	0.40	0.31	0.06	0.27	0.32	0.30	0.27	0.30	0.80	0.3
Shapes.....	4.15	5.14	3.52	5.35	5.40	3.89	4.81	4.96	2.67	5.27	7.32	4.15	4.15	2.50	3.20	4.2
Plates.....	2.85	2.92	6.71	8.07	12.60	5.87	7.96	6.06	6.66	7.39	8.76	2.85	2.85	10.70	16.60	5.6
Pipes.....	0.63	1.33	0.58	0.78	1.00	0.75	0.75	0.94	1.11	0.87	1.86	0.63	0.63	0.10	0.12	0.7
Bars.....	0.10	0.12	0.10	0.13	0.13	0.10	0.10	0.10	0.09	0.11	0.11	0.10	0.10	0.16	0.27	0.1
Sheets and strip.....	2.97	4.99	0.08	0.08	.....	0.29	0.29	3.05	0.03	0.12	0.11	4.60	0.50	0.60	3.60	1.8
Wheels, rolled steel*.....	2.24	2.24	2.24	2.44	2.44	2.24	2.44	2.44	2.44	2.24	2.44	2.24	2.24	2.24	2.24	2.8
Axles.....	1.67	1.67	1.67	2.03	2.03	1.67	2.03	2.03	2.03	1.67	2.03	1.41	1.41	1.67	1.67	1.7
Other forgings.....	0.46	0.46	0.66	0.66	0.25	0.51	0.60	0.87	0.13	0.41	0.41	0.48	0.48	0.75	0.80	0.6
Steel castings.....	3.60	3.60	4.25	4.25	3.39	3.60	4.18	4.52	3.60	3.60	4.11	3.60	3.60	3.60	3.60	3.8
Miscellaneous.....	1.07	1.07	1.05	1.11	0.60	0.93	1.06	1.19	2.33	1.12	1.13	1.07	1.07	1.00	1.10	1.0
Totals.....	20.01	23.82	23.22	25.26	27.84	20.20	24.52	26.47	21.15	23.07	28.60	21.41	17.28	23.82	33.80	22.1

* If chilled iron wheels used, this amount eliminated.

† These figures are approximate for 1951 cars. Current data is no longer being released.

Source: American Railway Car Institute

STEEL USED IN THE AVERAGE FREIGHT CAR



SELECTED FARM MACHINERY

Manufactured in the U. S. in Number of Units

	Tractor Mold Board Plows	Corn Binders	Corn (Field) Pickers	Silage Cutters	Grain Binders	Grain Thrashers	Combines, Harv. and Thresh.	Manure Spreaders	Tractor Cultivators	One Way Disc Plows or Tillers	Hay Loaders	Pickup Hay Balers	Milking Machines	Power Sprayer and Dusters	Field Cultivators	Sweep Rakes
1929	122,897	15,246	8,620	8,065	65,069	13,818	36,957	61,000	34,634	No data	24,920	2,172	24,092	11,324	No data	18,273
1931	26,827	No data	3,243	3,156	15,356	3,954	5,907	19,707	15,631	7,085	10,042	1,311	14,896	5,955	No data	7,118
1935	57,882	19,290	1,845	7,294	47,680	4,619	3,672	31,462	54,519	9,800	8,813	No data	4,217	8,169	4,819	5,244
1936	116,213	19,364	4,052	12,850	66,970	8,622	16,983	53,361	115,957	9,651	22,742	No data	9,841	9,655	5,755	8,508
1937	149,006	16,694	13,586	10,197	32,295	4,998	29,403	60,057	127,188	15,027	27,256	No data	21,502	9,680	11,774	7,094
1938	117,960	12,765	16,722	11,743	47,619	8,649	48,046	27,344	90,760	13,245	17,481	No data	18,787	7,920	11,488	7,508
1939	98,672	5,535	16,044	9,125	15,242	2,781	41,537	33,363	65,547	9,408	15,350	454	22,798	9,904	6,004	4,783
1940	171,896	9,990	11,638	8,507	No data	2,054	46,552	46,075	104,345	14,148	20,226	1,484	44,374	6,845	8,138	6,497
1941	183,497	13,175	15,958	11,403	No data	2,459	54,296	69,618	175,285	17,074	29,930	8,200	55,711	9,915	13,115	9,397
1942	132,131	No data	13,640	8,332	5,171	2,146	41,722	56,881	141,704	11,274	19,426	8,801	37,287	10,363	11,313	9,812
1943	55,182	3,077	12,592	4,163	3,782	668	29,219	17,448	83,802	5,363	11,508	5,418	46,892	7,475	3,718	6,549
1944	121,689	9,709	25,371	8,757	11,317	1,858	44,704	49,522	181,554	12,945	21,065	12,126	78,421	13,875	17,618	14,599
1945	158,159	8,699	35,885	9,005	9,054	1,185	51,418	44,997	191,330	13,122	20,591	12,535	125,413	16,928	21,214	17,699
1946	162,113	7,218	34,554	9,294	No data	2,583	48,811	44,143	151,489	16,731	25,273	11,072	146,203	26,598	22,323	40,045
1947	244,115	No data	66,055	13,222	9,523	1,277	76,638	64,927	245,735	25,670	20,407	26,573	176,195	57,454	39,564	21,358
1948	306,805	No data	78,809	10,709	No data	2,181	90,668	118,206	358,057	35,429	28,472	48,469	128,599	119,952	74,892	14,901
1949	329,463	No data	90,410	7,752	No data	2,168	104,888	128,497	327,244	31,575	13,109	57,262	108,540	74,597	62,583	5,176
1950	341,710	No data	88,836	2,997	No data	779	116,274	98,551	247,530	24,151	6,429	60,642	102,949	80,713	34,187	3,098

Source: U. S. Department of Commerce

METAL PRODUCTS

Cars of revenue freight loaded . . . Freight car carrying capacity in tons . . . Domestic railroad passenger cars ordered annually

CARS OF REVENUE FREIGHT LOADED, BY PRODUCTS

Grain, Ore, Live Stock, Coal, Coke, Forest Products Shown

Period	Total Revenue Freight Loaded	Grain and Grain Products	Live Stock	Coal	Coke	Forest Products	Ore	Merchandise L.C.L.	Miscellaneous
1929	52,827,925	2,396,195	1,419,191	9,095,271	634,427	3,248,408	2,281,566	13,205,696	20,547,168
1932	28,179,952	1,653,381	949,267	5,338,938	223,766	899,199	210,567	9,069,736	9,835,279
1935	31,504,134	1,577,053	714,495	6,144,601	339,628	1,383,872	1,036,432	8,080,675	12,227,288
1936	36,109,112	1,804,767	759,092	6,937,418	480,043	1,682,582	1,623,008	8,275,977	14,546,227
1937	37,670,464	1,788,966	721,601	6,976,938	507,817	1,626,032	2,207,632	8,465,866	15,173,610
1938	30,457,078	1,967,316	702,920	5,540,739	274,639	1,417,869	845,965	7,681,847	12,025,781
1939	33,911,498	1,940,054	694,246	6,082,520	413,686	1,584,336	1,615,036	7,830,935	13,750,675
1940	36,357,854	1,834,593	685,282	6,819,614	548,686	1,799,650	2,148,428	7,679,389	14,842,212
1941	42,352,127	2,027,824	651,310	7,606,315	678,841	2,189,840	2,682,728	8,039,515	18,475,756
1942	42,771,102	2,185,022	745,180	8,356,430	731,777	2,445,231	3,015,745	8,536,792	19,754,925
1943	42,439,951	2,648,308	837,777	8,507,036	751,687	2,226,907	2,815,572	8,079,720	19,570,944
1944	43,408,295	2,520,733	892,145	8,889,518	750,685	2,271,450	2,648,589	8,427,928	20,007,247
1945	41,916,120	2,733,966	893,525	8,296,208	694,707	2,038,992	2,474,336	8,528,809	19,257,875
1946	41,341,278	2,497,043	924,919	8,004,021	586,890	2,263,246	1,995,721	8,325,295	18,744,143
1947	44,502,188	2,725,655	770,123	9,088,131	732,130	2,414,548	2,851,024	8,071,293	20,049,284
1948	42,633,902	2,467,286	630,873	8,729,745	735,801	2,359,193	2,790,635	8,457,824	19,672,545
1949	35,909,741	2,583,900	551,124	5,217,387	588,181	1,952,294	2,210,337	4,688,485	17,218,033
1949: First quarter	9,987,425	562,133	119,723	1,757,363	196,483	458,307	222,606	1,208,392	4,462,418
Second quarter	9,753,724	622,159	112,749	1,621,236	189,795	499,311	950,859	1,197,220	4,380,395
Third quarter	9,070,307	672,697	143,368	1,248,681	120,231	493,018	896,650	1,110,096	4,305,966
Fourth quarter	8,096,285	636,711	175,284	1,390,107	101,672	501,658	150,822	1,072,777	4,069,254
1950: First quarter	38,699,523	2,465,596	491,116	7,241,163	727,236	2,222,431	2,529,177	4,268,367	18,954,437
Second quarter	8,127,115	525,216	103,857	1,480,017	147,080	567,684	147,072	1,041,296	4,225,603
Third quarter	10,611,999	683,245	118,840	1,891,165	185,982	557,684	699,573	1,065,858	4,704,002
Fourth quarter	10,400,261	704,909	164,681	1,987,168	202,024	590,662	620,515	1,065,344	5,084,928
1951: First quarter	9,494,206	643,396	96,607	1,866,910	203,966	579,738	233,501	1,017,029	4,850,062
Second quarter	10,423,198	592,514	100,934	1,792,889	208,523	631,444	998,628	998,406	5,098,860
Third quarter	11,283,594	736,930	147,759	1,947,923	224,523	636,031	1,220,558	1,007,552	5,362,320
Fourth quarter*	6,596,096	433,351	116,790	1,310,914	130,932	365,588	474,890	585,889	3,177,742

* Through Dec. 1.

Source: Assn. of American Railroads

FREIGHT CAR CARRYING CAPACITY IN NET TONS

Data for Principal Types of Cars Used On Class I Railroads

	Box	Flat	Stock	Gondola and Hopper	Tank	Refrig.	Others	Average
1932	42.	44.2	37.9	54.	45.	33.4	82.8	47.
1935	43.1	46.1	38.3	54.8	45.	35.2	53.4	48.3
1936	43.5	46.7	38.5	55.2	44.8	35.4	55.8	48.6
1937	43.9	46.9	38.9	55.4	45.	36.2	54.4	49.2
1938	44.2	47.1	39.1	55.6	45.	36.3	54.6	49.4
1939	44.6	47.3	39.3	55.7	45.	36.3	54.1	49.7
1940	44.8	47.7	39.5	56.	45.3	36.9	50.9	50.
1941	45.2	48.	39.5	56.2	45.3	37.	51.2	50.3
1942	45.5	48.6	39.6	56.3	46.1	36.8	51.4	50.5
1943	45.8	48.9	39.6	56.5	46.	36.8	50.8	50.7
1944	45.8	49.1	39.5	56.4	46.1	36.9	49.7	50.8
1945	46.2	49.2	39.5	56.6	46.1	36.9	50.2	51.1
1946	46.3	49.3	39.5	56.8	46.1	37.	49.4	51.2
1947	46.7	49.4	39.5	56.8	46.2	37.1	50.9	51.5
1948	47.1	49.6	39.6	57.2	46.3	37.1	51.4	51.9
1949	47.3	49.9	39.6	57.9	47.1	37.5	52.	52.4
1950	47.6	50.4	39.7	58.0	47.4	37.6	52.8	52.8

Source: American Railway Car Institute

DOMESTIC RAILROAD PASSENGER CARS ORDERED

Coach, Dining and Combination Type Cars Shown In Data From 1929

	Coach	Coach and Comb.	Baggage and Express	Express Refr. and Milk	Sleeping and Comb.	Parlor, Club, etc.	Dining	Postal and Comb.	All Other	Total
1929	2	1	4	2	1	0	0	4	30	44
1935	14	16	7	55	18	6	10	7	0	133
1936	294	36	35	0	8	26	44	10	1	451
1937	136	22	58	110	171	10	37	8	0	567
1938	85	26	42	0	86	10	15	10	2	278
1939	97	20	9	0	125	18	38	12	2	321
1940	220	26	8	0	53	6	48	13	5	379
1941	164	13	69	0	197	16	36	46	8	549
1942	0	1	2	0	0	0	0	0	31	34
1943	14	2	3	0	0	0	4	12	1650	1685
1944	461	36	20	0	26	16	53	12	101	725
1945	296	17	134	25	570	84	98	54	1767	2993
1946	311	40	22	0	587	53	143	46	36	1238
1947	132	0	22	0	72	36	19	29	6	316
1948	143	0	51	0	158	20	25	10	101	506
1949	46	0	6	0	30	6	14	6	1	109
1950	21	0	38	0	1	0	0	10	32	102
1951*	52	0	34	0	14	20	6	4	34†	164

* January through November.

† Includes 16 self propelled units.

Source: American Railway Car Institute

FREIGHT CARS DELIVERED

Data for Builders and Private Shops

Year	Car Builders' Shops	Railroad and Private Line Shops	Total
1914	91,852	5,774	97,626
1915	46,704	11,522	58,226
1916	100,869	10,647	111,516
1917	99,500	16,205	115,705
1918	82,701	14,362	97,063
1919	82,845	12,136	94,981
1920	46,784	14,171	60,955
1921	38,259	1,033	40,292
1922	63,866	2,423	66,289
1923	146,247	29,501	175,748
1924	104,093	9,618	113,711
1925	94,707	11,028	105,735
1926	78,896	9,964	88,860
1927	54,830	8,540	63,370
1928	39,375	7,685	47,060
1929	68,712	12,876	81,589
1930	65,061	9,838	74,899
1931	7,497	8,706	16,203
1932	482	2,770	3,252
1933	863	1,300	2,163
1934	16,211	8,965	25,176
1935	5,965	1,550	7,515
1936	30,969	15,643	46,612
1937	61,929	15,569	77,498
1938	9,990	6,480	16,470
1939	19,491	5,641	25,132
1940	45,316	17,025	62,341
1941	63,396	17,227	80,623
1942	47,429	15,444	62,873
1943	24,616	7,220	31,836
1944	27,953	15,050	43,003
1945	31,011	12,853	43,864
1946	31,885	10,070	41,955
1947	52,990	15,532	68,522
1948	83,196	29,444	112,640
1949	62,955	29,607	92,562
1950	24,443	19,548	43,991

Month	4,405	1,548	5,953
Jan.	4,405	1,548	5,953
Feb.	4,514	1,328	5,842
Mar.	4,966	2,045	7,011
Apr.	5,781	2,483	8,264
May	7,198	2,576	9,774
June	7,185	2,459	9,644
July	4,014	1,276	5,290
Aug.	5,156	2,027	7,183
Sept.	5,755	2,823	8,578
Oct.	6,777	3,335	10,112
Nov.	6,315	3,509	9,824
Total	62,066	25,409	87,475

Source: American Railway Car Institute

R. R. EMPLOYMENT, EARNINGS

Class I R.R. Only

Non-Supervisory Employees

	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	All Employees Number (thousands)
1948	\$59.14	46.1	\$1.284	1,327
1949	61.73	43.5	1.419	1,191
1950	63.20	40.8	1.549	1,220
1951:				
Jan.	67.86	42.2	1.608	1,253
Feb.	69.50	41.2	1.687	1,253
Mar.	71.48	42.0	1.702	1,274
Apr.	70.99	40.8	1.740	1,287
May	71.80	41.1	1.747	1,290
June	73.05	41.2	1.773	1,296
July	72.14	40.3	1.790	1,295

Source: Bureau of Labor Statistics



Federal Reserve index of industrial production . . . Truck and trailer production . . . Retail hardware sales from 1941.

METAL PRODUCTS

SHIPBUILDING EMPLOYMENT

Workers' Average Earnings

	Production and Related Workers				All Employees	
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)	
1940	\$60.68	38.7	\$1.568	123.2	140.7	
1949	61.67	37.0	1.623	85.0	100.3	
1950	63.28	36.4	1.648	71.4	84.4	
1951						
Jan.	64.24	38.7	1.660	82.7	96.5	
Feb.	68.80	40.4	1.703	94.9	108.9	
Mar.	68.78	40.2	1.711	95.6	109.5	
Apr.	68.31	39.9	1.712	94.3	108.5	
May	68.46	39.8	1.720	94.7	108.1	
June	70.42	40.1	1.756	97.9	112.4	
July	71.59	40.4	1.772	99.6	114.5	
Aug.	71.72	40.0	1.793	97.6	112.7	

Source: Bureau of Labor Statistics

AIRCRAFT AND PARTS WAGES

Employment and Average Earnings

	Production and Related Workers					All Employees
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	
1940	228.1	185.6	\$61.21	41.0	\$1.493	
1949	255.6	188.5	63.62	40.6	1.567	
1950	275.4	201.8	68.39	41.6	1.644	
1951						
Jan.	354.2	264.2	76.78	43.7	1.757	
Feb.	382.7	287.6	75.86	43.3	1.752	
Mar.	400.0	298.9	77.35	43.9	1.762	
Apr.	415.9	309.3	77.13	44.0	1.753	
May	428.5	317.9	77.22	43.9	1.759	
June	451.7	332.7	77.31	43.8	1.765	
July	470.2	344.6	77.57	43.7	1.775	
Aug.	494.4	354.0	77.47	43.5	1.781	

Source: Bureau of Labor Statistics

RETAIL HARDWARE SALES

(In Millions of Dollars)

1942	\$973
1943	903
1944	1,030
1945	1,237
1946	1,911
1947	2,255
1948	2,494
1949	2,342
1950	2,634
1951: January	218
February	201
March	234
April	242
May	271
June	255
July	226
August	236
Total—Eight Months	\$1,883

Source: Dept. of Commerce



FEDERAL RESERVE INDEX OF INDUSTRIAL PRODUCTION

Durable and Nondurable Manufactures, Fuels, Metals

	Combined Index	Manufacturers			Minerals		
		Total	Durable Manufactures Total	Nondurable Manufactures Total	Total	Fuels	Metals
1935 monthly av.	87	87	83	90	86	89	73
1936 monthly av.	103	104	100	100	99	99	102
1937 monthly av.	113	113	122	108	112	109	127
1938 monthly av.	89	87	78	95	97	99	86
1939 monthly av.	109	109	109	109	106	108	113
1940 monthly av.	125	126	139	115	117	114	134
1941 monthly av.	162	168	201	142	125	122	149
1942 monthly av.	199	212	279	158	129	125	148
1943 monthly av.	239	258	380	176	132	132	128
1944 monthly av.	235	252	253	171	140	148	113
1945 monthly av.	203	214	274	166	137	143	101
1946 monthly av.	170	177	192	165	134	142	88
1947 monthly av.	187	194	220	172	149	155	118
1948 monthly av.	192	198	225	177	156	161	120
1949 monthly av.	176	183	202	168	135	139	107
1950: Jan.	179	189	206	175	125	133	80
Feb.	177	188	204	176	113	115	61
Mar.	183	191	210	177	139	148	83
April	188	197	221	178	147	147	87
May	195	203	232	180	147	148	140
June	200	208	238	184	155	155	155
July	198	207	237	182	149	148	158
Aug.	212	221	248	198	163	162	169
Sept.	215	223	253	199	167	167	171
Oct.	220	229	263	201	165	170	161
Nov.	215	226	260	197	159	165	124
Dec.	216	227	266	196	153	163	93
1950 monthly av.	200	209	237	187	148	152	125
1951: Jan.	216	226	264	196	159	169	94
Feb.	217	228	268	196	153	163	94
Mar.	219	231	275	194	153	163	92
April	222	232	278	195	162	167	129
May	223	232	277	197	168	168	166
June	223	233	276	197	169	169	171
July	215	234	267	190	161	160	166
Aug.	221	230	272	197	169	170	170
Sept.	224	233	275	198	173	173	173
1951 monthly av.*	219	231	272	195	162	166	135

* Preliminary average.

Source: Federal Reserve Board

TRUCK AND TRAILER PRODUCTION AND SHIPMENTS

Production of Principal Types of Trucking Equipment

	1947		1948		1949		1950	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
Total (Including Trailer Chassis)...	53,096	55,372	44,478	46,960	33,097	34,273	64,617	65,966
Complete Trailers	49,795	52,071	42,395	44,877	31,571	32,747	62,270	63,619
Vans	23,254	24,833	23,199	23,715	18,317	18,999	38,257	39,497
Insulated and 'Refrs'	1,852	2,474	2,279	2,724	2,642	2,756	3,925	3,992
Furniture	1,185	855	546	618	14,056*	14,623*	30,388*	31,554
Other Closed Top	18,601	19,445	18,372	18,988				
Open Top	1,616	1,759	2,002	2,023	1,619	1,620	3,964	3,951
Platforms	12,555	12,803	7,514	9,210	6,159	6,489	11,470	11,388
Cattle and Stake Racks	3,369	3,404	1,588	1,949	950	1,094	1,890	1,648
Grain Bodies	1,271	1,167	585	895	359	502	642	665
All Other Platform	7,915	7,932	5,340	6,366	4,850	4,873	9,236	9,073
Tanks	3,430	3,802	3,550	3,420	2,035	2,174	3,962	4,071
Petroleum	3,019	3,386	3,178	3,042	1,855	2,008	3,668	3,812
Other	411	418	374	378	180	166	294	259
Pole and Logging	5,356	5,320	3,571	3,902	1,280	1,309	2,512	2,615
Single Axle	3,815	3,898	2,064	2,184	842	861	1,434	1,447
Tandem Axle	1,541	1,624	1,607	1,718	618	628	1,078	1,168
Low-Bed Heavy Haulers	2,405	2,417	1,821	1,834	1,426	1,453	1,758	1,783
Off-Highway**	908	795						
Dump Trailers	622	707	504	554	470	522	908	931
All Other Trailers	1,365	1,604	2,136	2,142	1,904	1,641	3,383	3,386
Trailer Chassis	3,301	3,301	2,683	2,683	1,528	1,528	2,347	2,347
Total Dollar Value of Shipments	\$138,383,093		\$139,996,000		\$119,098,000		\$229,685,000	

* Combined with Other Closed Top.

** Combined with "All Other Trailers" since August, 1948.

Source: Truck-Trailer Mfrs. Assn.

Household appliances: Sales and retail value . . . Refrigerator index of sales

HOUSEHOLD APPLIANCES: SALES AND RETAIL VALUE

Cleaners, Ironers, Ranges, Irons, Refrigerators and Washing Machines

Product	1941		1946		1947		1948		1949		1950	
	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value
Cleaners, vacuum:												
Floor type	1,670,129	\$93,600,906	2,269,500	\$155,228,100	3,900,687	\$265,368,000	3,500,000	\$268,345,000	2,875,000	\$219,937,500	3,500,000	\$274,780,000
Hand type	383,381	5,726,377	80,000	1,505,883			295,000	7,839,000	190,000	5,272,500	230,000	6,670,000
Ironing machines	259,668	14,489,056	175,000	13,146,000	599,250	75,021,800	470,000	65,221,900	300,000	42,000,000	400,000	58,129,000
Irons, total	5,585,000	21,099,750	9,600,000	82,959,000	9,400,000	100,046,000	6,800,000	80,925,000	6,310,000	81,639,500	7,475,000	101,188,500
Automatic	2,900,000	14,790,000	7,000,000	67,645,000	8,000,000	90,400,000	5,850,000	75,757,500	4,850,000	62,807,500	5,235,000	67,793,250
Non-automatic	2,685,000	6,309,750	2,600,000	15,314,000	1,400,000	9,646,000	650,000	5,167,500	495,000	3,440,250	595,000	3,867,250
Ranges	728,000	103,376,000	576,700	107,266,200	1,200,000	278,000,000	1,600,000	376,000,000	1,056,000	242,880,000	1,830,000	424,623,000
Refrigerators	3,500,000	542,500,000	2,100,000	434,700,000	3,400,000	867,000,000	4,530,000	1,177,800,000	4,450,000	1,134,750,000	6,200,000	1,602,268,000
Washing machines:												
Total	2,014,435	159,329,970	2,123,980	256,283,580	4,281,000	575,814,000	4,710,000	750,200,000	3,200,000	534,178,000	4,345,000	780,971,000
Electric (std. size)	1,892,435	148,656,150	2,047,380	247,303,000	3,657,000	541,236,000	4,285,000	722,123,000	3,065,000	525,188,000	4,212,000	774,318,950
Gas engine (std. size)	122,000	10,773,820	76,600	8,980,580	126,000	18,144,000	114,400	17,846,400	35,000	5,390,000	18,500	2,774,050
Small					498,000	18,434,000	310,000	10,230,000	100,000	3,600,000	114,500	3,877,225
Water heaters, storage	205,000	17,015,000	488,000	58,560,000	1,100,000	143,000,000	1,040,000	143,000,000	695,000	90,350,000	990,000	131,175,000

Source: Electrical Merchandising

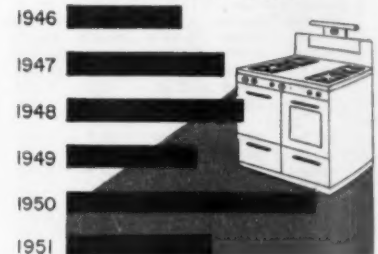
DOMESTIC COOKING APPLIANCE SHIPMENTS

Electric, Gas, Coal, Oil, and Wood Ranges and Cook Stoves

	1946	1947	1948	1949	1950	1951
Electric Ranges	576,723	1,043,711	1,363,742	903,806	1,612,387	9 Mos. 982,827
Gas Ranges	1,691,526	2,268,526	2,579,265	1,954,910	2,896,475	1,726,733
Bungalow Ranges	70,355	70,179	61,428	38,013	45,061	38,484
Combination Ranges	115,642	171,517	128,585	87,044	101,175	47,145
Kerosene, Gasoline, Fuel Oil Ranges, Cook Stoves	516,308	559,579	466,777	185,939	190,776	100,500
Coal and Wood Ranges and Cook Stoves	405,107	449,356	295,527	169,928	150,978	89,210
Total Unit Shipments	3,375,916	4,562,868	4,895,324	3,339,640	4,996,850	2,984,899

Source: Institute of Cooking and Heating Appliance Manufacturers

GAS RANGE SHIPMENTS MILLIONS OF UNITS



ELECTRIC HOUSEHOLD REFRIGERATOR INDEX OF SALES

Index of Domestic Refrigerator Sales Billed; Average Month 1936 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.
1935	56.2	70.8	124.5	155.7	142.8	93.5	89.8	64.1	31.2	25.3	27.3	44.0	77.1
1936	69.4	105.8	156.7	175.0	189.4	136.6	118.0	61.6	48.1	25.5	45.0	70.9	100.0
1937	100.6	144.5	207.4	197.2	196.1	157.6	113.5	70.9	48.7	39.9	62.8	64.5	116.2
1938	61.0	84.3	101.3	123.7	104.4	61.0	51.7	64.1	38.2	20.0	18.7	27.8	62.0
1939	87.9	117.4	142.8	147.7	155.5	152.6	93.2	53.8	41.5	35.2	31.4	52.6	92.6
1940	133.5	159.7	169.7	208.7	236.9	202.0	152.7	126.9	69.2	54.3	49.1	71.0	136.1
1941	231.7	220.8	260.5	297.3	267.3	233.1	211.4	168.5	102.4	82.8	57.3	62.6	183.0

Insufficient data available for computing indexes for the years 1942-1945 inclusive.

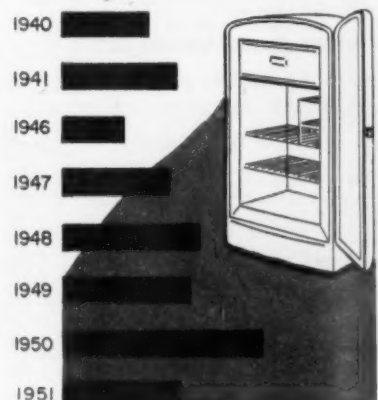
	Average first 6 months—71.2						1946	1947	1948	1949	1950	1951
1946	131.7	113.4	154.3	167.6	176.4	183.0	173.3	133.1	179.7	197.1	181.9	211.2
1947	181.8	188.2	226.0	219.0	210.5	246.5	231.9	185.8	225.7	249.7	245.4	216.7
1948	253.1*	224.2	245.3	215.6	220.0	197.1*	209.9	204.6	205.9	168.0	137.4*	160.9
1949	226.1	279.7	355.6	330.0	328.0	331.5	304.3	293.0	302.1	235.6	227.9	216.5
1950	274.8	237.7	329.5	241.8	182.8	154.3	117.9	97.6	114.5			190.4†

* Revision.

† 9 month average.

Source: National Electrical Manufacturers Assn.

REFRIGERATOR SALES INDEX



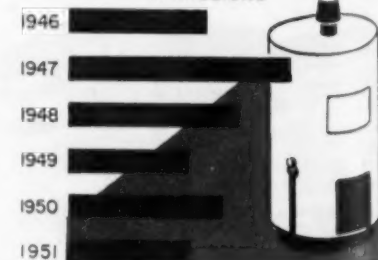
DOMESTIC HEATING APPLIANCE SHIPMENTS

Gas, Wood, Coal, and Oil Heaters Shown

	1946	1947	1948	1949	1950	1951
Gas	1,258,600	2,752,465	2,083,990	1,452,034	1,993,317	1,164,540
Wood (sheet metal airtight types)	666,360	636,209	511,647	519,305	562,806	
Coal and Wood (other than sheet metal airtight types)	780,927	669,439	691,959	432,228	324,895	368,032
Kerosene, Gasoline and Fuel Oil:						
Vaporizing pot-type	1,006,174	1,953,807	1,185,607	713,720	729,053	755,905
Sleeve-type		50,442	48,258	27,682		
Unvented portable type	312,876	415,967	704,626	513,157	434,247	
Total Unit Shipments	4,204,939	6,478,329	5,227,289	3,658,938	4,044,318	2,286,477

Source: Dept. of Commerce

HOME HEATING UNIT SHIPMENTS IN MILLIONS



Production of electric power . . . Electric
Appliance sales index, employment, wages

METAL PRODUCTS

PRODUCTION OF ELECTRIC POWER IN MILLIONS OF KW-HR

Monthly Averages for Electric Utilities and Industrial Establishments

	Total	Electric Utilities	Industrial Establishments		Total	Electric Utilities	Industrial Establishments		Total	Electric Utilities	Industrial Establishments
1935 monthly average	7,941			1950: January	31,677	26,871	4,805	1951: January	36,728	31,416	5,308
1936 monthly average	9,110			February	28,789	24,270	4,519	February	33,102	28,219	4,883
1937 monthly average	9,909			March	31,684	26,997	4,687	March	36,172	30,920	5,252
1938 monthly average	9,484			April	30,191	25,437	4,754	April	34,431	29,293	5,138
1939 monthly average	13,442	10,637	2,806	May	31,486	26,525	4,962	May	35,136	29,871	5,265
1940 monthly average	14,992	11,820	3,172	June	31,608	26,685	4,923	June	34,966	29,840	5,126
1941 monthly average	17,359	13,732	3,627	July	31,626	26,780	4,846	July	35,435	30,392	5,042
1942 monthly average	19,429	15,493	3,931	August	33,874	28,889	5,005	August	37,510	32,326	5,184
1943 monthly average	22,295	18,147	4,148	September	32,650	27,774	4,876	September	35,296	30,275	5,020
1944 monthly average	23,294	19,016	4,278	October	34,307	29,151	5,157				
1945 monthly average	22,605	18,541	4,064	November	34,072	29,008	5,068	1951 monthly average	35,434	30,297	5,149
1946 monthly average	22,407	18,586	3,869	December	35,779	30,639	5,146				
1947 monthly average	25,617	21,312	4,305								
1948 monthly average	26,067	23,556	4,509	1950 monthly average	33,124	28,144	4,981				
1949 monthly average	28,711	24,251	4,471								

Source: Federal Power Commission

APPLIANCE EMPLOYMENT

Hours and Average Earnings

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1948	\$56.08	40.2	\$1.395	125.5	154.8
1949	56.52	39.5	1.431	100.8	128.3
1950	61.50	41.0	1.502	113.3	139.8
1951					
Jan.	64.80	41.3	1.569	124.0	151.8
Feb.	65.38	41.3	1.583	124.4	152.6
Mar.	65.07	40.9	1.591	123.9	152.3
Apr.	66.52	41.0	1.598	123.6	151.9
May	65.44	40.8	1.604	122.2	150.9
June	66.62	41.2	1.617	121.2	150.0
July	64.05	39.2	1.634	117.3	145.9
Aug.	63.83	39.5	1.616	118.9	147.8

Source: Bureau of Labor Statistics

MOTORS AND GENERATORS

Index of Orders Integral HP Units

YEAR	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Avg.
1935	54.6	63.0	70.2	70.7	64.6
1936	75.2	109.4	103.2	112.2	100.0
1937	150.5	137.6	110.4	83.9	120.6
1938	68.7	68.4	61.3	67.1	66.4
1939	78.5	82.2	95.8	137.2	96.4
1940	102.7	124.9	147.7	229.4	151.2
1941	260.4	335.7	336.7	329.4	315.5
1942	457.0	664.6	554.4	435.6	527.9
1943	580.2	373.0	400.1	414.0	436.8
1944	284.6	341.8	345.2	314.1	321.4
1945	293.9	274.7	234.8	307.4	277.7
1946	288.1	416.1	468.0	492.8	416.7
1947	459.1	393.7	306.2	391.6	388.1
1948	294.8	329.2	289.9	301.2	303.8
1949	262.0	239.6	223.8	232.2	239.4
1950	336.7	333.7	551.1	674.2	474.4
1951*	779.9	696.4	899.7		695.3*

* 9 month average.

Source: National Electrical Manufacturers Assn.

VACUUM CLEANER SALES

Floor Upright, Cylinder, Hand Units

Year	Floor Upright & Cylinder, Units	Hand, Units
1931	667,250	191,047
1932	447,058	110,232
1933	580,644	191,819
1934	687,890	246,009
1935	850,109	294,441
1936	1,084,656	361,461
1937	1,210,191	421,121
1938	967,002	295,610
1939	1,084,605	312,035
1940	1,340,590	358,804
1941	1,670,129	383,381
1942	579,667	85,167
War Years 1943-44-45		
1946	2,269,441	80,053
1947	3,800,667	186,457
1948	3,360,849	289,923
1949	2,888,518	191,110
1950	3,500,000	230,000
1951* (9 Mos.)	2,020,253	n.a.

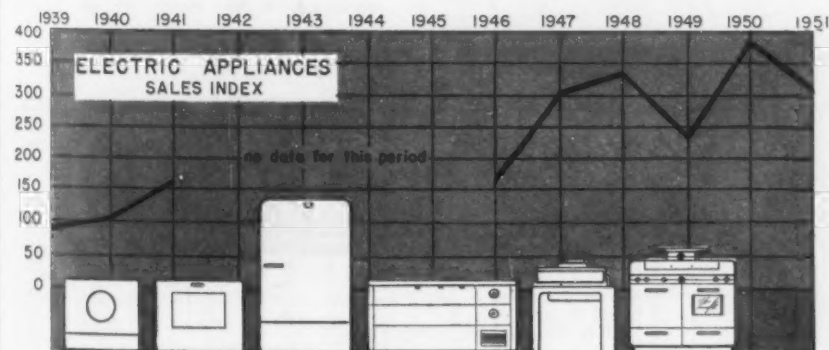
Source: Vacuum Cleaner Manufacturers Assn.

RADIO AND TELEVISION SALES

Home, Auto, Portable and Television Units

Year	Home	Portable	Auto	TV
1937	8,065,000		1,750,000	
1938	7,100,000		910,000	
1939	10,538,000		1,400,000	
1940	11,860,000		2,200,000	
1941	13,700,000		2,600,000	
1942-1945—War Years				
1946	14,031,000		1,153,450	6,500
1947	14,484,530	2,478,000	3,029,630	178,570
1948	10,465,450	2,642,660	3,409,000	975,000
1949	6,619,910	1,351,300	3,437,825	3,000,000
1950	7,950,000	1,799,750	4,029,000	6,900,000
1951:				
(9 Mos.)	5,133,033	1,096,770	3,947,675	3,970,857

Source: Electrical Merchandising



ELECTRIC APPLIANCES—MONTHLY SALES INDEX

Major Domestic Unit Sales Billed; Average Month 1936 = 100

Year	January	February	March	April	May	June	July	August	September	October	November	December	Average
1935	43.3	58.8	82.4	93.4	100.1	77.3	70.7	72.8	75.7	83.4	89.0	86.6	74.5
1936	63.6	76.8	122.2	121.6	126.2	113.4	99.0	92.1	106.2	103.4	82.2	94.4	100.0
1937	95.2	104.4	170.4	163.0	148.3	144.4	117.1	102.9	109.1	80.9	62.5	58.1	113.9
1938	68.2	76.3	93.6	85.9	79.3	74.2	67.4	75.1	74.1	75.0	61.2	89.3	74.2
1939	87.5	90.9	111.2	95.9	102.7	95.7	73.1	66.8	92.2	93.3	78.6	65.2	89.2
1940	107.3	110.5	124.6	126.7	131.1	108.5	94.8	96.9	107.0	116.5	88.1	86.6	108.2
1941	133.5	146.1	179.1	191.2	188.1	186.4	185.5	148.0	179.2	145.8	110.1	131.5	180.4
Insufficient data available for computing indexes for the years 1942-1945 inclusive													
1946	105.3	84.3	102.3	129.3	121.4	188.6	181.9	206.8	197.3	234.0	228.2	215.6	164.5
1947	223.0	247.3	301.3	306.2	310.1	329.8	280.7	265.8	343.8	377.8	333.1	352.2	305.9
1948	324.6	329.6	389.7	341.1	318.3	338.5	278.8	334.0	387.7	363.8	341.8	279.3	337.0
1949	265.0	252.4	285.6*	203.4*	194.6*	226.0*	189.9*	239.8*	288.6*	266.5*	227.8*	237.7	238.1
1950	274.9	327.2	408.9	356.6	371.2	394.5	344.6	390.5	430.1	399.0	366.8	363.8	369.2
1951	361.2	341.8	420.3	325.3	295.2	284.4	190.8	209.3	264.3	n.a.	n.a.	n.a.	307.0†

* Revised.

† 9 month average.

n.a.—Not available.

Source: National Electrical Manufacturers Association

METAL PRODUCTS

Expenditures for new construction . . .
Plant and equipment spending . . . Housing
starts . . . Transportation spending in U. S.

EXPENDITURES FOR NEW CONSTRUCTION BY TYPE

Spending for Private, Public, Utility, and Military Construction

Type of Construction	Expenditures (In millions of dollars)									
	1950	1951								
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Total new construction ²	27,902	2,088	1,980	2,122	2,370	2,550	2,700	2,790	2,843	2,826
Private construction	20,789	1,571	1,545	1,578	1,673	1,727	1,821	1,858	1,893	1,860
Residential building (nonfarm)	12,600	901	864	848	882	875	909	922	933	915
Nonresidential building (nonfarm)	3,777	376	383	396	407	433	483	466	457	451
Industrial	1,162	128	134	142	150	160	179	191	197	202
Commercial	1,288	122	122	126	125	130	130	119	108	101
Warehouses, office and utility buildings	402	47	46	44	45	47	47	47	48	45
Stores, restaurants and garages	886	75	76	82	80	83	83	72	60	56
Religious	409	37	36	35	35	38	41	42	42	42
Educational	294	28	27	26	26	27	29	30	32	32
Social and recreational	247	18	17	16	15	14	15	14	13	12
Hospital and institutional	344	30	31	32	34	37	38	38	37	36
Hotel	132	13	16	19	22	27	31	32	27	26
Miscellaneous	133	69	74	83	95	113	126	134	140	130
Farm construction	1,170	220	219	248	283	300	318	331	357	358
Public utilities	315	22	15	20	29	31	31	33	34	35
Railroad	2,375	169	173	190	214	227	245	255	280	283
Pipeline	440	29	31	30	40	42	42	43	43	40
Electric light and power	440	29	31	30	40	42	42	43	43	40
Gas	440	29	31	30	40	42	42	43	43	40
Telephone and telegraph	440	29	31	30	40	42	42	43	43	40
Public construction	7,113	497	435	544	687	823	879	932	950	956
Residential building	345	29	29	35	44	46	51	55	58	55
Nonresidential building	2,402	214	205	229	274	310	313	324	319	329
Industrial	224	34	37	39	55	70	83	95	96	100
Educational	1,163	110	108	115	125	130	130	132	134	136
Hospital and institutional	475	37	31	39	48	52	52	49	49	49
Miscellaneous	539	33	29	36	46	50	48	45	40	36
Military and naval facilities	117	27	25	34	60	80	85	102	110	118
Highway	2,350	105	65	115	160	215	250	270	280	275
Sewage disposal	671	52	49	53	61	64	66	68	68	68
Water supply	186	10	8	13	17	20	21	21	22	20
Miscellaneous public service enterprises	886	54	49	58	73	80	85	85	86	84
Conservation and development	96	6	5	7	8	8	8	7	7	7
All other public	96	6	5	7	8	8	8	7	7	7

¹ Not shown separately.
² Less than \$500,000.

Source: Dept. of Commerce Dept. of Labor

TRANSPORTATION SPENDING Plant, Equipment Expenditures

(Millions of dollars)

	Railroad	Other Transportation	Electric and Gas Utilities	Commercial and Miscellaneous
1935	\$ 168	Included in Commercial		\$1,784
1936	308			2,320
1937	524			2,878
1938	240			2,482
1939	280			1,850
1940	440			1,900
1941	560			2,490
1942	540			1,472
1943	460			732
1944	590			972
1945	550			1,480
1946	572			3,390
1947	1,010			4,430
1948	1,210			5,380
1949	1,350			5,120
1950	1,140			4,920
1951*	1,580			5,360

*Preliminary. Source: Securities & Exchange Commission; U. S. Dept. of Commerce

NEW HOUSING STARTS Monthly Starts of Non-Farm Units

Month	New Non-Farm Units Started			
	1948	1949	1950	1951
January	53,500	50,000	78,700	85,900
February	50,100	50,400	82,900	88,600
March	78,400	68,400	117,300	93,500
April	99,500	88,300	133,400	96,200
May	100,300	95,400	149,100	101,000
June	97,800	95,500	144,300	132,500
July	95,000	96,100	144,400	88,000
August	86,600	89,000	141,900	88,000
September	82,200	102,900	120,600	91,000
October	73,400	104,300	102,500	87,000*
November	83,600	95,500	87,300	83,000*
December	52,900	78,300	93,600	79,000*
Total	931,300	1,027,100*	1,393,000	1,101,000*
Monthly av.	77,600	85,597*	116,300	91,750

* Estimated. Source: U. S. Department of Labor

PLANT, EQUIPMENT SPENDING

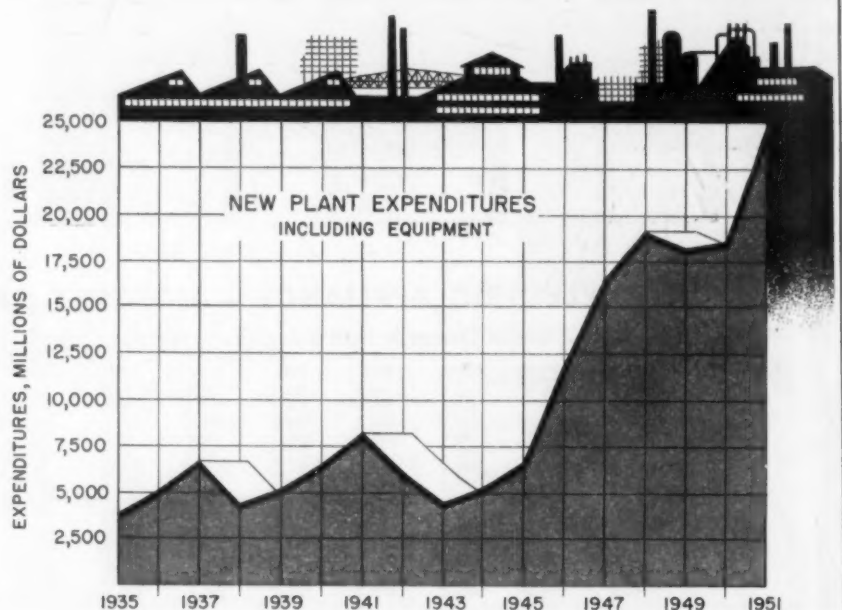
Expenditures In Millions

	Total All Industries	Manufacturing	Mining
1936	\$5,080	\$2,452	(1)
1937	6,732	3,332	(1)
1938	4,524	1,832	(1)
1939	5,200	1,930	\$380
1940	8,504	2,580	560
1941	8,190	3,400	680
1942	8,124	2,760	412
1943	4,536	2,252	360
1944	5,216	2,392	500
1945	8,830	3,210	440
1946	12,044	6,912	560
1947	16,300	7,480	700
1948	19,230	8,350	800
1949	18,120	7,250	740
1950	18,560	8,220	680
1951*	24,830	12,630	870

* Estimated.

¹ Included in manufacturing.

Source: Securities & Exchange Commission; U. S. Dept. of Commerce



Business sales and inventories . . .
Consumer expenditures, classified

METAL PRODUCTS

CONSUMER EXPENDITURES, CLASSIFIED

Annual Rates in Billions of Dollars From 1935

	Total	Durable Goods			Nondurable Goods						Services					
		Auto- mobiles and Parts	Furni- ture and House- hold Equip- ment	Other Durable Goods	Cloth- ing and Shoes	Food and Alcoholic Bever- ages	Gaso- line and Oil	Semi- durable House- furnish- ings	Tobacco	Other Non- durable Goods	House- hold Opera- tion	Hous- ing	Personal Service	Recrea- tion	Trans- porta- tion	Other Services
1935	56.2	1.9	2.5	0.8	5.9	16.3	1.7	0.5	1.4	3.5	3.0	7.6	1.2	1.3	1.5	7.1
1936	62.5	2.3	3.1	1.0	6.5	18.5	1.9	0.7	1.5	3.8	3.2	7.9	1.3	1.4	1.7	7.7
1937	67.1	2.4	3.4	1.2	6.7	20.0	2.1	0.7	1.7	4.0	3.5	8.4	1.5	1.6	1.8	8.2
1938	64.5	1.6	3.0	1.1	6.6	19.0	2.1	0.6	1.7	3.9	3.4	8.7	1.4	1.5	1.7	7.9
1939	67.5	2.1	3.4	1.2	7.0	19.3	2.2	0.8	1.8	4.2	3.6	8.9	1.4	1.6	1.9	8.1
1940	72.1	2.1	3.8	1.3	7.4	20.7	2.3	0.8	1.9	4.5	3.8	9.2	1.6	1.7	2.0	8.3
1941	82.3	3.3	4.8	1.6	8.6	24.4	2.6	1.0	2.1	5.1	4.0	9.9	1.8	1.8	2.2	8.9
1942	91.2	0.7	4.5	1.9	11.0	30.5	1.9	1.1	2.3	6.0	4.5	10.6	2.1	2.1	2.7	9.3
1943	102.2	0.8	5.8	2.2	13.7	35.3	1.2	1.3	2.6	6.9	5.0	11.1	2.5	2.3	3.5	10.1
1944	111.6	0.9	7.7	2.5	15.3	38.9	1.2	1.4	2.6	7.7	5.8	11.7	2.7	2.7	3.7	11.1
1945	123.1	1.1	4.4	3.0	17.1	43.0	1.6	1.4	2.9	8.8	6.1	12.2	2.9	3.0	3.9	11.8
1946	147.8	4.4	8.2	3.9	18.6	51.0	3.0	1.8	3.5	8.9	8.3	13.1	3.5	3.7	4.5	13.4
1947	168.9	7.2	10.8	4.0	19.1	57.8	3.5	1.9	3.9	10.0	7.0	14.5	3.7	3.9	4.8	14.9
1948	178.8	8.2	11.4	4.0	20.0	61.1	4.1	1.9	4.1	10.9	7.7	15.9	3.7	3.9	5.1	15.8
1949	178.4	9.4	10.2	3.8	19.3	60.0	4.2	1.9	4.1	10.1	8.0	17.1	3.7	4.0	5.2	16.1
1949: First quarter	177.9	8.6	10.2	3.7	19.3	60.0	4.1	2.0	4.1	10.4	8.1	16.6	3.6	4.0	5.2	17.9
Second quarter	178.2	9.6	10.1	3.8	19.1	59.2	4.2	1.8	4.1	10.1	8.0	17.0	3.7	4.0	5.1	18.1
Third quarter	179.0	10.2	11.0	3.6	18.0	58.4	4.7	1.8	4.3	10.4	8.3	17.3	3.7	4.0	5.1	18.3
Fourth quarter	180.6	10.4	11.3	3.7	18.1	58.3	4.8	1.8	4.3	10.5	8.5	17.6	3.7	3.9	5.1	18.6
1950: First quarter	182.4	10.8	12.5	3.6	17.7	58.3	4.9	1.9	4.3	10.5	8.8	17.9	3.7	3.8	5.1	18.8
Second quarter	185.2	11.0	12.0	3.6	18.4	59.1	5.1	1.9	4.3	10.6	9.0	18.1	3.7	3.9	5.1	19.2
Third quarter	186.5	13.5	16.2	3.8	19.7	62.5	5.2	2.3	4.3	10.9	9.3	18.4	3.7	3.8	5.1	19.6
Fourth quarter	196.4	12.9	12.4	4.1	19.2	62.7	5.2	2.0	4.5	11.2	9.8	20.5	3.9	3.9	5.3	20.7
1951: First quarter	208.2	12.5	14.8	4.3	20.4	67.0	5.4	2.4	4.7	11.6	10.1	20.9	3.9	3.9	5.4	21.0
Second quarter	201.7	10.8	11.1	4.0	19.5	65.9	5.1	2.0	4.8	11.2	10.2	21.3	3.9	3.9	5.6	21.3
Third quarter	202.4	9.6	11.8	4.1	19.4	67.3	5.2	2.1	4.8	11.1	10.3	21.6	4.0	4.0	5.7	21.6

† Seasonally adjusted, quarterly totals, at annual rates.

Source: Dept. of Commerce

SALES AND INVENTORIES (Billions of Dollars)

Manufacturing, Wholesale and Retail Trade, Monthly Figures†

	Business Sales				Business Inventories, Book Value— End of Month			
	Total Business Sales	Manu- facturing (total)	Wholesale Trade (total)	Retail Trade (total)	Total Business Inventories	Manu- facturing (total)	Wholesale Trade (total)	Retail Trade (total)
1939 monthly average	\$11.1	\$5.1	\$2.5	\$3.5	\$20.2	\$11.5	\$3.2	\$5.5
1940 monthly average	12.5	5.9	2.8	3.9	22.2	12.8	3.3	6.0
1941 monthly average	16.4	8.2	3.6	4.6	28.8	17.0	4.2	7.6
1942 monthly average	19.2	10.4	4.0	4.8	31.0	19.3	3.9	7.9
1943 monthly average	22.4	12.8	4.3	5.3	31.1	20.1	3.7	7.4
1944 monthly average	24.1	13.8	4.6	5.7	30.9	19.5	4.0	7.4
1945 monthly average	24.2	12.9	5.0	6.3	30.6	19.4	4.8	7.5
1946 monthly average	27.6	12.6	6.8	8.4	42.4	24.5	6.7	11.2
1947 monthly average	33.8	15.0	7.8	9.9	45.0	28.2	7.9	12.0
1948 monthly average	37.0	17.8	8.4	10.8	51.9	29.5	8.0	14.1
1949 monthly average	34.9	16.7	7.5	10.7	53.5	31.0	8.5	13.9
1950								
January	34.2	16.2	7.2	10.9	52.0	29.0	9.0	14.0
February	35.3	16.9	7.3	11.1	51.8	29.0	9.0	13.8
March	36.6	17.8	7.7	11.1	52.5	29.1	9.1	14.3
April	35.6	17.2	7.4	11.1	52.9	29.4	9.4	14.1
May	38.7	19.3	8.0	11.3	53.6	29.7	9.5	14.4
June	39.9	19.8	8.4	11.7	54.2	30.0	9.5	14.7
July	42.0	20.3	9.0	12.7	53.2	29.8	9.3	14.1
August	45.3	23.0	9.6	12.7	54.5	29.9	9.6	15.1
September	40.8	20.1	8.3	12.4	55.1	30.1	8.4	16.6
October	41.2	20.7	8.5	12.0	57.1	31.0	8.8	17.4
November	40.6	20.5	8.3	11.8	59.0	32.2	9.5	17.7
December	42.2	21.0	8.6	12.7	60.4	33.3	9.4	17.8
1950 monthly average	39.4	19.4	8.2	11.8	54.7	30.2	9.2	15.3
1951								
January	45.9	22.0	9.8	13.6	62.1	34.1	9.5	18.5
February	44.8	22.3	9.2	13.3	63.4	35.0	9.7	19.0
March	44.2	22.6	9.0	12.7	65.2	35.6	9.9	19.7
April	43.4	22.5	8.7	12.3	67.4	36.9	10.1	20.3
May	44.7	23.4	8.9	12.4	69.0	38.1	10.3	20.6
June	43.0	22.1	8.4	12.3	69.4	39.9	10.2	20.3
July	41.8	21.3	8.4	12.1	70.3	39.9	10.3	20.5
August	43.0	21.8	8.8	12.5	70.1	40.6	10.7	19.4
September	41.5	20.8	8.4	12.3	70.0	41.0	10.7	18.8

† Business sales and inventories are defined as the sum data for manufacturing and wholesale and retail trade.

Source: U. S. Dept. of Commerce

FARM TRACTOR PRODUCTION

Domestic Output; Nonfarm Excluded

	Wheel Type		Track Type	Total All Farm
	Conventional	All Purpose		
1929	195,980		27,101	223,081
1931	36,109	25,831	7,089	69,029
1935	31,741	106,343	18,774	156,858
1936	39,068	154,879	27,299	221,246
1937	53,882	183,955	34,602	272,439
1938	41,377	131,060	16,837	189,274
1939	26,973	158,585	20,127	205,685
1940	25,163	224,271	24,762	274,196
1941	32,724	280,708	28,661	342,093
1942	21,135	180,988	29,578	231,701
1943	16,570	88,678	29,453	134,701
1944	43,228	205,903	44,860	293,991
1945	46,670	197,760	44,872	289,302
1946	37,393	220,881	25,902	284,176
1947	47,495	366,288	11,630	425,413
1948	25,617	394,120	12,780	591,382
1949	71,264	463,682	20,043	686,416
1950	56,769	433,457	18,978	663,031

Source: Depts. of Commerce and Agriculture

TRACTOR SALES AND OUTPUT

Based On Belt Horsepower Range

	1949*	1950
Production:		
Under 25 HP	337,357	281,590
25 to 35 HP	140,848	152,199
35 HP and over	121,931	107,964
Domestic Shipments:		
Under 25 HP	286,062	255,435
25 to 35 HP	119,933	133,984
35 HP and over	60,791	65,262

* Revised.

Source: Farm Implement News

METAL PRODUCTS

DISPOSITION OF INCOME Totals By Billions of Dollars

	Total	Personal Tax and Nontax Payments	Disposable Personal Income	
			Total	Personal Saving
1935	59.9	1.9	58.0	1.8
1936	68.4	2.3	66.1	3.6
1937	74.0	2.9	71.1	3.9
1938	68.3	2.9	65.4	1.0
1939	72.6	2.4	70.2	2.7
1940	95.3	3.3	92.0	9.8
1941	122.7	6.0	116.7	25.6
1942	150.3	17.8	132.4	30.2
1943	165.9	18.9	147.0	35.4
1944	171.9	20.9	151.1	28.0
1945	176.9	18.8	158.1	10.3
1946	193.5	21.5	172.0	5.1
1947	211.9	21.1	190.8	12.0
1948	213.5	19.0	195.0	15.0
1949	213.7	18.7	195.0	17.1
First quarter	212.9	18.7	194.2	16.0
Second quarter	206.3	18.6	187.7	9.8
Third quarter	205.4	18.7	186.8	6.2
Fourth quarter	216.4	18.7	197.7	15.3
1950	215.1	19.5	195.6	10.4
First quarter	224.8	20.0	204.7	6.4
Second quarter	238.3	23.1	215.2	16.8
1951	244.1	26.6	217.5	9.3
First quarter	250.0	27.1	222.8	21.1

Source: U. S. Dept. of Commerce, Office of Business Economics

FARM MACHINERY WAGES

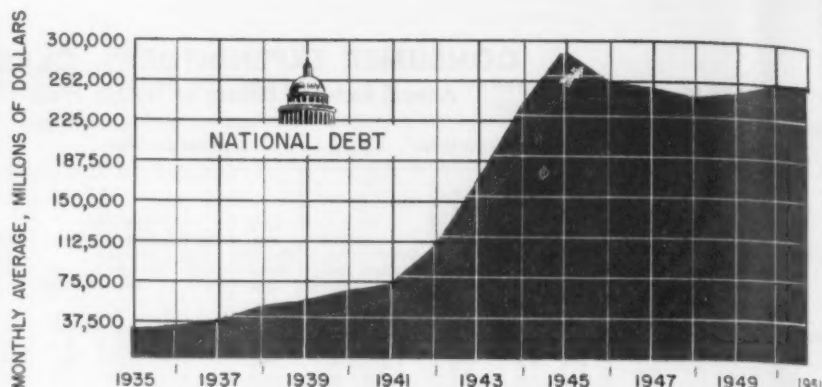
Workers' Average Earnings

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thou- sands)	Number (thou- sands)
1948	\$10.59	40.5	\$1.406	151.7	181.3
1949	61.11	39.3	1.555	142.4	181.3
1950	64.60	40.1	1.611	133.5	172.4
1951					
Jan.	71.84	41.1	1.748	146.5	188.8
Feb.	71.26	40.8	1.747	149.7	189.7
Mar.	73.06	41.0	1.782	151.0	192.1
Apr.	73.69	41.1	1.793	151.8	193.1
May	73.29	40.9	1.792	151.6	193.1
June	74.21	41.0	1.810	153.1	195.8
July	73.02	40.7	1.794	151.3	194.5
Aug.	71.34	39.9	1.788	129.9	167.6

Source: Bureau of Labor Statistics



Disposition of income . . . The national debt . . .
Agricultural machinery employment and wages . . .



GROSS NATIONAL DEBT OUTSTANDING
Interest-Bearing, Non-Interest Bearing (Millions of Dollars)

	Direct Debt					Obligations Guaranteed by U. S. Government
	Total	Interest-Bearing			Non-Interest Bearing	
		Total	Public Issues	Special Issues		
1935 monthly average	\$30,557	\$29,596	\$26,868	\$726	\$961	\$4,494
1936 monthly average	34,405	33,699	33,067	632	707	4,662
1937 monthly average	37,286	36,716	34,489	2,227	571	4,945
1938 monthly average	39,439	39,911	35,755	3,156	528	4,682
1939 monthly average	41,961	41,465	37,234	4,231	496	5,704
1940 monthly average	45,039	44,471	39,102	5,370	568	5,917
1941 monthly average	58,020	57,533	50,551	6,982	487	6,304
1942 monthly average	108,170	107,308	98,276	9,032	862	4,301
1943 monthly average	165,877	164,508	151,805	12,703	1,370	4,230
1944 monthly average	230,630	228,691	212,565	16,326	1,739	1,814
1945: June	258,682	256,357	237,545	18,812	2,326	433
1945: December	276,115	275,694	255,693	20,000	2,421	567
1946: June	269,422	268,111	245,779	22,332	1,311	476
1946: December	259,148	257,649	233,064	24,585	1,500	339
1947: June	258,286	255,113	227,747	27,366	3,173	90
1947: December	256,900	254,205	225,250	28,955	2,695	81
1948: June	252,292	250,063	219,852	30,211	2,229	73
1948: December	252,800	250,579	218,865	31,714	2,220	85
1949: June	252,770	250,762	217,986	32,776	2,009	27
1949: December	257,130	255,019	221,123	33,896	2,111	29
1950: June	257,357	255,209	222,853	32,556	2,148	20
1950: December	256,708	254,282	220,575	33,707	2,425	24
1951: January	256,125	253,704	219,712	33,992	2,421	18
February	255,941	253,382	219,448	33,933	2,559	18
March	254,997	252,553	219,028	33,525	2,444	21
April	254,727	252,280	218,690	33,590	2,447	21
May	255,093	252,729	218,680	34,049	2,364	29
June	255,222	252,852	218,198	34,653	2,370	29
July	255,657	253,325	218,618	34,707	2,332	28
August	256,644	254,321	219,174	35,146	2,323	32

Source: U. S. Treasury Dept.

STEEL USE BY METAL PRODUCT PRODUCERS

Carbon Steel Mill Shapes and Castings, by States and Areas, in Net Tons

Geographic Division and State	Purchases and Interplant Transfers		Standard Error of 1949 Estimates* (percent)		Geographic Division and State	Purchases and Interplant Transfers		Standard Error of 1949 Estimates* (percent)
	1949	1947				1949	1947	
New England	1,044,571	1,162,961	4		South Atlantic	1,733,372	1,784,911	5
Maine	85,406	69,781	7		Delaware	11,556	26,853	1
New Hampshire	21,856	32,075	7		Maryland	639,087	668,444	3
Massachusetts	615,119	575,933	4		West Virginia	538,719	552,672	6
Connecticut	282,293	408,398	9		Florida	131,351	145,346	4
Middle Atlantic	7,573,582	7,855,696	3		East South Central	744,417	1,170,035	8
New York	1,702,007	1,768,338	8		Kentucky	151,190	166,294	6
New Jersey	1,158,500	1,007,337	6		Tennessee	264,489	244,908	9
Pennsylvania	4,713,075	5,080,021	3		Alabama	298,458	482,256	9
East North Central	19,211,256	18,403,175	2		Mississippi	30,280	256,575	1
Ohio	4,432,001	4,559,375	2		West South Central	1,127,926	1,116,070	5
Indiana	1,744,615	1,640,916	3		Louisiana	166,188	214,784	5
Illinois	4,349,325	4,384,311	4		Texas	770,451	693,656	4
Michigan	7,186,528	6,001,417	2		Pacific	1,590,141	1,891,879	8
Wisconsin	1,498,587	1,637,156	5		California	1,319,158	1,580,900	8
West North Central	2,069,335	1,738,844	5					
Minnesota	463,501	390,616	9					
Iowa	473,451	362,170	7					
Missouri	901,765	743,015	4					
Kansas	84,192	134,448	10					
					United States Total†	35,315,832	35,288,317	1

* See p. 468 for explanation

† Totals include states using less than 10,000 tons and these where standard error of estimate exceeded 10 pct, which are not detailed above.

Source: Bureau of the Census

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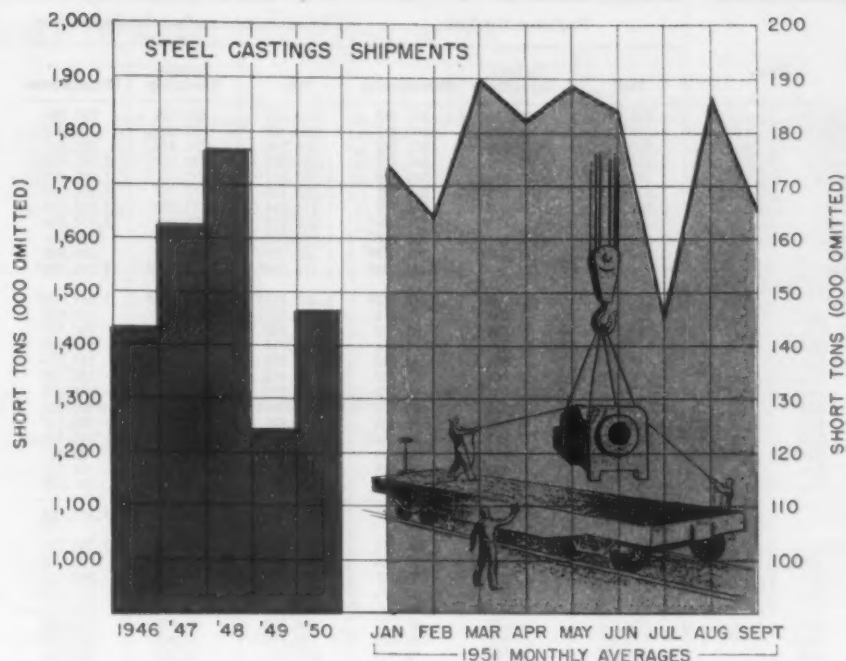
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CASTING FORGING

Steel castings production . . . Employment and earnings in iron and steel foundries

STEEL CASTINGS, PRODUCTION, SALES, ORDERS BY TYPE

Total Production and Sales Broken Into Railway Specialties and Miscellaneous

Year	Production, Net Tons			Orders Booked, Less Cancellations, Net Tons		
	Total	Railway Specialties	Miscellaneous	Total	Railway Specialties	Miscellaneous
1930.....	951,872	368,690	623,182	884,433	333,199	551,234
1935.....	398,988	94,329	304,659	400,157	97,357	302,800
1940.....	797,947	290,255	507,692	816,919	266,418	550,501
1941.....	1,316,027	471,810	844,217	1,561,884	560,286	1,001,578
1942.....	1,679,178	309,382	1,369,826	2,187,347	219,145	1,968,202
1943.....	1,926,645	248,664	1,679,981	2,333,420	352,780	1,980,680
1944.....	1,843,366	338,007	1,505,379	1,814,294	322,630	1,491,664
1945.....	1,484,957 ¹	311,833 ¹	1,173,124 ¹	1,829,912	352,382	1,477,530
1946.....	1,043,358 ¹	298,131 ¹	757,227 ¹	1,069,842	283,511	786,331
1947.....	1,203,504 ¹	341,967 ¹	861,517 ¹	1,330,081	449,432	880,649
1948.....	1,760,894 ²	442,258 ²	839,143 ²	5,514,224 ³	2,308,036 ³	3,206,188 ³
1949.....	1,243,502 ²	232,976 ²	623,321 ²	2,351,354 ³	809,688 ³	1,541,466 ³
Jan.....	140,577	31,891	71,612	338,889	139,967	198,922
Feb.....	135,042	32,545	66,880	320,202	130,460	189,742
Mar.....	138,889	30,313	71,714	284,754	109,945	174,809
Apr.....	119,953	23,834	59,443	250,506	99,240	151,266
May.....	106,178	22,165	53,372	191,473	85,851	105,622
June.....	116,052	26,940	57,172	173,237	58,215	115,022
July.....	78,710	14,625	35,499	155,494	48,236	107,258
Aug.....	89,964	13,348	46,064	143,586	39,448	104,118
Sept.....	85,502	11,823	44,030	127,664	28,526	99,138
Oct.....	70,690	8,964	39,299	124,817	25,896	98,921
Nov.....	76,437	7,270	43,415	117,885	23,114	94,751
Dec.....	84,508	9,258	43,821	122,887	20,990	101,897
1950.....	1,461,089	261,897	1,199,732	3,726,831	1,569,697	2,156,134
Jan.....	89,136	9,298	79,638	142,484	32,736	109,748
Feb.....	91,827	10,920	80,907	165,186	51,208	113,978
Mar.....	112,335	15,821	97,074	185,611	63,572	122,039
Apr.....	106,964	17,406	89,558	201,643	71,080	130,563
May.....	117,773	20,532	97,221	198,078	65,669	132,409
June.....	131,097	27,065	104,032	206,799	71,806	134,993
July.....	98,269	15,734	82,535	256,418	94,835	161,583
Aug.....	128,369	24,922	103,447	329,944	130,378	199,566
Sept.....	134,574	25,295	109,259	427,999	203,899	224,070
Oct.....	149,558	30,048	119,510	521,846	267,741	254,105
Nov.....	145,929	30,775	115,154	537,666	258,704	278,962
Dec.....	155,258	34,061	121,197	554,187	258,069	296,118
1951:	1,461,089	261,897	1,199,732	3,726,831	1,569,697	2,156,134
Jan.....	174,056	42,805	131,251	675,384	285,639	389,745
Feb.....	163,976	42,565	121,411	706,989	331,674	375,315
Mar.....	190,365	43,896	146,469	779,717	330,236	449,481
Apr.....	181,908	41,545	140,363	846,947	333,256	513,691
May.....	188,956	39,845	149,101	881,702	335,928	545,774
June.....	184,424	42,337	142,087	895,054	342,560	552,494
July.....	147,251	27,585	120,666	929,978	338,426	591,552
Aug.....	177,096	41,763	135,333	944,211	332,417	611,894
Sept.....	160,695	39,500	125,195	918,038	316,558	601,480

¹ Shipments beginning with last quarter of 1945.

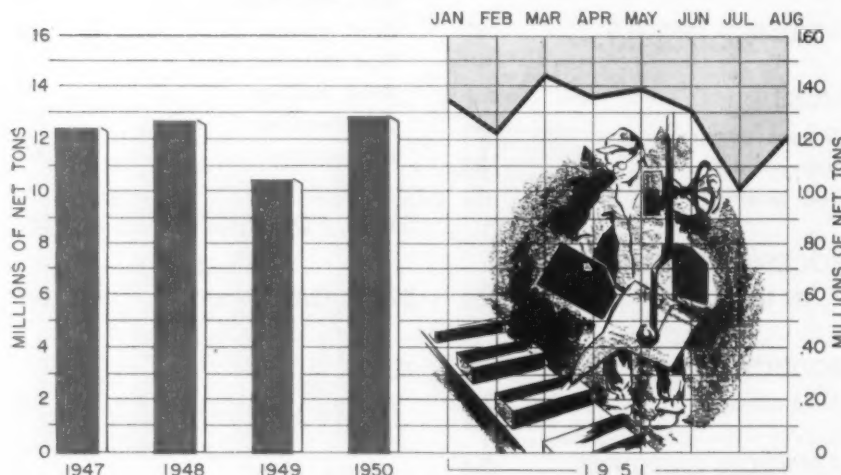
² Difference between total and classified use is the tonnage for own use and not for sale.

³ Unfilled orders or backlog.

Note: Approximate coverage of industry is as follows: 1920-30, 80 pct; 1935, 90 pct; 1940-44, 96 pct; 1945-46, 100 pct; 1947, preliminary estimates of complete coverage, based on a sample of the foundries.

Source: Bureau of Census

GRAY IRON CASTINGS SHIPMENTS



IRON AND STEEL FOUNDRIES

Employment and Average Earnings
All Production and Related Workers

Year	Employees Number (thousands)	Average Weekly Earnings (\$)	Average Weekly Hours	Average Hourly Earnings (\$)
1948.....	259.3	230.9	55.45	40.7
1949.....	217.0	188.9	55.09	37.2
1950.....	231.8	204.0	65.32	41.9
1951:				
Jan.....	270.8	240.7	71.66	43.3
Feb.....	274.8	244.9	71.48	42.8
Mar.....	279.9	249.4	73.31	43.3
Apr.....	282.6	251.5	72.83	43.1
May.....	284.1	252.5	72.46	42.8
June.....	285.3	253.7	72.06	42.6
July.....	277.2	246.4	70.14	41.8
Aug.....	280.1	249.3	70.91	41.9

Source: Bureau of Labor Statistics

GRAY IRON, SEMISTEEL FOUNDRIES

Average Hours and Earnings of Workers

Year	Avg. Weekly Earnings, \$	Avg. Weekly Hours	Avg. Hourly Earnings, \$
1943.....	47.39	47.3	1.003
1944.....	51.34	47.7	1.077
1945.....	50.86	46.2	1.101
1946.....	50.70	42.5	1.194
1947.....	55.24	42.3	1.306
1948.....	57.46	40.9	1.405
1949.....	54.38	37.5	1.450
1950.....	65.06	42.3	1.538
1951: Jan.....	70.63	43.8	1.620
Feb.....	69.90	42.7	1.637
Mar.....	72.17	43.4	1.663
Apr.....	70.88	42.8	1.658
May.....	70.75	42.7	1.657
June.....	70.47	42.5	1.658
July.....	68.48	41.4	1.654
Aug.....	69.31	41.2	1.658

* All data for 1947 through 1951 calculated on revised BLS basis.

Source: Bureau of Labor Statistics

MALLEABLE CASTINGS, LABOR

Average Earnings and Hours for Industry

Year	Avg. Weekly Earnings, \$	Avg. Weekly Hours	Avg. Hourly Earnings, \$
1940.....	25.43	37.5	0.678
1941.....	31.67	41.7	0.757
1942.....	37.15	42.5	0.874
1943.....	46.14	46.5	0.994
1944.....	50.98	47.9	1.064
1945.....	49.83	45.4	1.099
1946.....	49.51	40.9	1.211
1947.....	54.39	40.2	1.353
1948.....	59.19	40.4	1.465
1949.....	54.30	35.7	1.521
1950.....	65.46	41.3	1.585
1951: Jan.....	71.52	42.7	1.673
Feb.....	70.88	42.5	1.666
Mar.....	73.40	43.1	1.703
Apr.....	74.73	43.4	1.722
May.....	73.23	42.5	1.723
June.....	71.20	41.3	1.724
July.....	69.44	40.8	1.702
Aug.....	71.43	41.7	1.713

* All data for 1947 through 1951 calculated on revised BLS basis.

Source: Bureau of Labor Statistics

STEEL CASTINGS EARNINGS

Average Hours and Earnings of Workers

Year	Avg. Weekly Earnings, \$	Avg. Weekly Hours	Avg. Hourly Earnings, \$
1940.....	29.66	38.6	0.769
1941.....	37.00	43.7	0.844
1942.....	43.77	45.8	0.955
1943.....	48.79	46.4	1.052
1944.....	51.59	46.2	1.116
1945.....	49.98	43.9	1.136
1946.....	45.45	38.6	1.248
1947.....	53.94	39.6	1.362
1948.....	59.93	40.8	1.476
1949.....	56.73	37.3	1.521
1950.....	65.43	41.1	1.592
1951: Jan.....	73.19	42.8	1.710
Feb.....	74.48	43.2	1.724
Mar.....	74.61	43.1	1.731
Apr.....	75.85	43.4	1.743
May.....	74.90	42.8	1.750
June.....	76.29	43.3	1.762
July.....	74.68	42.6	1.753
Aug.....	76.25	43.3	1.761

* All data for 1947 through 1951 calculated on revised BLS basis.

Source: Bureau of Labor Statistics

Shipments of steel, gray iron and malleable castings, by product type and grade.

IRON AND STEEL CASTINGS

SHIPMENTS OF STEEL CASTINGS, ALLOY AND CARBON

By Types of Furnace and Grade of Steel, Net Tons

	1947	1948	1949	1950	1951											
					January	February	March	April	May	June	July	August	September			
Total	1,625,055	1,760,032	1,243,502	1,461,667	174,056	163,976	190,365	181,908	188,958	184,424	147,251	177,096	160,695			
Carbon steel	1,241,005	1,367,708	844,232	1,066,062	135,086	123,293	148,894	139,948	143,201	141,538	111,964	130,913	120,632			
Alloy (including stainless)	384,050	392,324	299,270	395,605	38,970	37,683	41,461	41,960	45,755	42,886	35,287	46,183	40,063			
Electric furnace	691,098	758,383	571,324	712,781	82,618	78,589	93,292	92,327	93,106	88,642	74,419	94,012	81,534			
Bessemer					704	899	1,093	1,033	715	1,066	795	852	923			
Open hearth, basic	880,727	1,001,649	672,178	748,886	53,102	46,816	53,070	50,731	54,500	52,244	36,635	50,543	44,680			
Open hearth, acid					30,576	30,040	40,619	37,287	39,663	38,181	31,089	36,319	33,468			
All other					7,547	7,907	3,323	3,236	3,634	3,172	2,789	3,197	2,563			

Source: Bureau of Census

SHIPMENTS OF GRAY IRON CASTINGS INCLUDING PIPE

Iron Castings Plus Soil and Pressure Pipe, Net Tons

	1951											
	1948	1949	1950	January	February	March	April	May	June	July	August	September
Total Gray Iron Castings:												
Shipments.....	12,785,909	10,549,284	12,905,562	1,364,311	1,234,226	1,440,149	1,363,041	1,395,996	1,308,613	1,028,812	1,219,000	1,114,799
For Sale.....	7,131,405	5,517,527	6,880,352	762,407	684,928	818,473	767,016	795,813	742,420	588,128	698,000	625,511
For Own Use.....	5,654,504	5,031,757	6,025,210	601,904	549,298	621,676	596,025	600,183	566,193	440,684	521,000	489,278
Unfilled Orders for Sale.....	31,179,282			2,297,705	2,391,843	2,389,659	2,336,926	2,228,196	2,162,023	2,203,116	2,170,000	2,055,392
Molds for Heavy Steel Ingots,												
Shipments.....	1,979,740	1,776,242	2,303,661	103,475	91,593	114,853	106,417	112,145	103,042	95,575	109,257	96,011
Chilled Iron R. R. Car Wheels,												
Shipments.....	719,784	565,569	514,074	49,065	46,967	57,241	54,002	57,485	52,700	35,202	44,507	41,380
Cast Iron Pressure Pipe and												
Fittings, Shipments.....	1,149,553	1,029,743	1,203,762	131,779	117,141	141,620	135,113	139,845	121,851	82,217	115,284	111,893
Cast Iron Soil Pipe and Fittings,												
Shipments.....	639,989	533,310	761,317	72,225	62,290	74,592	68,395	67,649	64,872	45,333	50,862	47,916
Misc. Gray Iron Castings,												
Shipments.....	8,296,843	6,624,420	8,117,748	405,963	369,982	427,162	403,039	418,710	394,955	301,749	378,042	328,331

Source: Bureau of Census

MALLEABLE IRON CASTINGS SHIPMENTS. ORDERS

Production, Shipments and New Orders, Net Tons

	Shipments, Net Tons			New Orders, Less Cancellations, Net Tons			Shipments, Monthly Index*
	Total	For Sale	For Own Use	Total	For Sale	For Own Use	
1930	475,371			432,722			
1935	455,208			452,611			96.1
1938	296,003	208,597	87,406	289,384	203,172	86,212	82.6
1939	466,068	331,421	134,647	489,482	354,249	135,233	96.4
1940	556,209	400,818	155,391	571,929	414,310	157,619	117.4
1941	832,173	619,365	212,808	884,881	663,688	221,193	175.7
1942	746,008	590,804	155,204	859,102	703,157	155,945	188.3
1943	844,639	653,684	190,955	1,054,224	826,422	227,802	185.4
1944	878,233	619,588	258,645	969,483	766,711	202,772	186.9
1945	790,731	520,887	269,844	766,711	483,368	283,343	153.8
1946	752,028	482,355	269,673		447,975		188.9
1947	895,054	512,228	382,826		460,189		197.0
1948	933,285	525,212	408,063		228,483	204,047	155.8
1949	713,330	371,214	34,418	430,530	646,307		150.0
1950	920,502	512,192	408,310				
1951: January	92,508	54,817	37,691	234,000			
February	88,950	54,915	34,035	255,347			
March	101,667	60,265	41,402	270,091			
April	97,276	57,554	39,722	279,561			
May	100,800	61,373	39,427	277,778			
June	94,376	57,176	37,200	258,144			
July	76,826	45,072	31,754	263,017			
August	90,727	57,164	33,563	249,273			
September	82,270	48,568	33,708	244,575			

Source: Bureau of Census

Note: Statistics represent coverage of approximately 90 pct for 1923-43; thereafter coverage is essentially complete.
* Based on average monthly shipments for 5-year period 1935-39 (39,476 short tons).

How do your views of the outlook for business volume, profits, machinery replacement, etc., for 1952 line up with those of others in the metalworking industry? Tom Campbell reports the results of a special survey on these subjects in an article beginning on p. 249. Following that is an analysis of last year's industrial developments as they affect the industrial picture for 1952. And if you are working on government contracts you may want to refer to the digest of alloy steel specifications that starts on p. 260. A special section on government controls, CMP and NPA orders, etc., begins on p. 327.

CASTING FORGING

Strategic jet-engine alloy list . . . steel forgings, cast iron radiation and foundry equipment shipments . . . average weekly wages and hours.

HIGH-TEMPERATURE JET-ENGINE ALLOYS

Popular Grades Listed in Order of Their Decreasing Strategic Alloy

	C	Cr	Ni	Co	Mo	W	Cu	Ti	Fe	Other
S-816	0.4	20	20	44	4	4	4		3	
L-805	0.1	20	10	51					3	
S-500	0.4	20	20	20	4	4	4		25	
61	0.4	28	1	67		5				
Vitalium	0.25	28	2.5	62	5.5				1	
X-40	0.5	25	10	55		7			0.6	
I-1300	0.4	28	15	51	6		2		4.5	Al-6 Be-0.5
N-155	0.3	20	20	20	3	2	1.0		0.32	Ni-0.11
Inconel X	0.05	15	73				1	2.5	7	
K-42-B	0.05	18	42	22				2.2	14	Al-0.2
EME	0.1	19	12			3.2	1.2		13	Ni-0.15
Refractalloy 26	0.05	18	37	20	3			2.8	18	Al-0.2
Wasp alloy	0.06	20	57	13.5	3			2.5	1.0	Al-1.3
M-252	0.17	20	55	10	10			2	1.5	Al-0.8
Nimonic 80	0.05	21	75					2.5	0.7	Al-0.6
19-9-DL	0.3	19	9		1.2	1.2	0.3	0.3	67	
Inconel	0.05	14	78						7	Cu-0.2
Hastalloy B	0.1		64		28				5	
Timken (16-25-6)	0.12	18	25		6					Ni-0.18
Discolloy	0.03	13.5	26		3.2			1.6	54	Al-0.1
A-288	0.05	15.5	26		1.3			2	52	Al-0.5
17W	0.8	13	19		1	2.5			60	

CAST IRON RADIATION SHIPMENTS By Type and Dollar Value

	Cast Iron Boilers 1000 lb	Value (\$1000)	Cast Iron Radiators and Convectors 1000 sq ft	Value (\$1000)
1949	206,296		35,888	
1950	267,451		48,117	
1951				
Jan.	21,262	\$4,706	4,675	\$2,065
Feb.	19,458	4,382	4,311	2,008
Mar.	19,456	4,361	4,658	2,887
Apr.	12,898	2,933	3,550	2,219
May	10,443	2,418	2,413	1,537
June	12,770	2,985	2,264	1,474
July	11,461	2,708	2,220	1,306
Aug.	18,748	4,229	3,564	2,190

Source: Bureau of Census and Dept. of Commerce

FOUNDRY EQUIPMENT ORDERS AND SHIPMENTS

Index and Dollar Volume for New Orders and Repairs

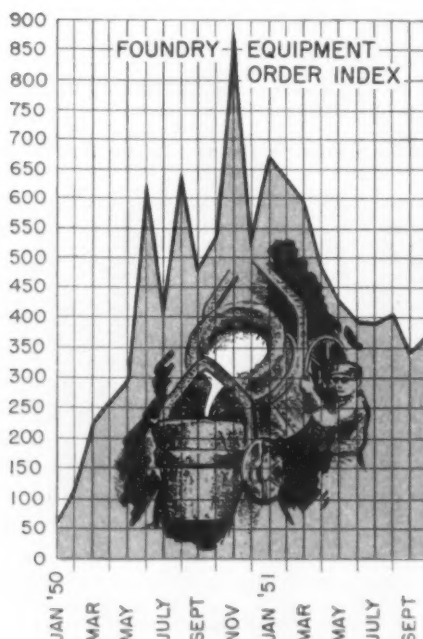
	New Orders Closed New Equipment		Shipments		
	\$	Index	New Equipment, \$	Repairs \$	Total \$
1948	18,817,669		20,747,890	10,451,628	31,199,518
1949	9,208,468		12,074,055	7,401,326	19,475,381
1950	23,394,594		11,203,568	8,564,698	19,768,266
1951: January	3,075,267	668.0	1,319,626	1,051,322	2,370,950
February	2,940,273	638.6	1,324,955	980,826	2,305,781
March	2,757,763	599.0	1,555,705	1,193,149	2,748,854
April	2,256,232	490.1	1,820,795	1,123,228	2,944,023
May	1,987,472	431.7	2,005,515	1,175,379	3,180,894
June	1,810,435	393.2	2,271,729	1,000,061	3,271,790
July	1,796,785	390.3	1,748,113	990,494	2,738,607
August	1,862,084	404.5	1,906,368	1,112,325	3,018,693
September	1,595,440	346.5	2,383,841	1,123,380	3,507,221

Source: Foundry Equipment Manufacturers Assn.

EARNINGS IN FORGING INDUSTRY Average Earnings Per Worker

	Avg. Weekly Earnings, \$	Avg. Weekly Hours	Avg. Hourly Earnings, \$
1936	26.11	41.7	0.627
1937	28.84	40.9	0.711
1938	23.97	32.3	0.744
1939	29.45	38.4	0.767
1940	32.56	41.2	0.791
1941	40.93	45.9	0.894
1942	49.93	47.9	1.047
1943	56.88	48.2	1.180
1944	59.62	47.7	1.251
1945	56.79	45.0	1.262
1946	52.77	39.9	1.324
1947*	59.79	40.7	1.469
1948	65.16	40.8	1.597
1949	63.18	38.2	1.654
1950	74.09	41.6	1.781
1951			
Jan.	82.34	43.2	1.906
Feb.	81.49	42.6	1.913
Mar.	83.87	43.5	1.928
Apr.	85.78	43.9	1.954
May	84.41	43.4	1.945
June	85.91	43.7	1.966
July	82.10	42.3	1.944
Aug.	83.07	42.8	1.941

* All data for 1947 through 1951 calculated on revised BLS basis. Source: Bureau of Labor Statistics



SHIPMENTS OF STEEL FORGINGS* (Net Tons)

	Total	Drop and Upset				Press and Open Hammer			
		Carbon Steel		Alloy Steel		Carbon Steel		Alloy Steel	
		For Sale	For Own Use	For Sale	For Own Use	For Sale	For Own Use	For Sale	For Own Use
1947	1,333,731	692,544		279,538		224,738		138,911	
1948	1,413,266	693,874		344,928		227,682		146,802	
1949	1,138,628	585,474		280,970		162,852		109,332	
1950	1,800,096	741,140		639,447		293,998		125,511	
1951: Jan.	138,413	71,084		37,758		15,620		13,951	
Feb.	128,799	62,067		35,381		19,160		12,191	
March	160,917	77,303		40,736		26,798		16,090	
April	153,947	74,133		37,941		24,812		17,061	
May*	266,474	71,610	37,697	45,865	26,525	38,519	18,118	21,279	6,861
June	248,858	67,721	31,217	43,258	24,404	36,247	15,787	21,145	7,079
July	219,547	57,206	29,774	38,069	22,662	36,288	13,686	15,756	6,196
Aug.	240,194	60,102	32,861	43,860	28,061	34,802	15,228	19,209	6,371
Sept.	225,364	56,024	29,886	41,682	25,606	34,445	13,235	17,965	6,539

* Prior to May, 1951, this table included only commercial shops shipping over 300 tons a month. Now the coverage is based on both "captive" and commercial shops with 50 tons of shipments per month and over. Source: Bureau of Census

Shipments of non-ferrous castings . . .
Wages and hours in non-ferrous foundries
and pressed metal shops . . . Furnace sales

CASTING FORGING

ALUMINUM CASTINGS, SHIPMENTS

By Type of Castings, Net Tons

	Shipments					Unfilled Orders*
	Total	Sand	Mold	Die	Other	
1942	81,025					
1943	115,125					
1944	128,725					
1945	93,475					
1946	97,170	40,212	38,285	18,426	287	
1947	110,409	38,776	43,829	27,635	458	
1948	106,123	34,946	40,334	29,885	1,160	
1949	152,306	53,423	51,454	44,010	3,432	
1950	226,305	77,007	71,911	72,331	5,058	
1951:						
Jan.	42,538	14,401	14,554	12,641	471	93,284
Feb.	40,784	14,105	13,062	12,852	378	94,575
Mar.	42,204	15,900	12,771	12,677	428	100,453
Apr.	40,242	14,455	12,901	12,079	404	106,077
May	40,467	14,798	13,400	11,692	299	112,838
June	35,961	13,853	10,323	10,850	468	112,760
July	27,426	10,739	7,142	8,693	426	119,461
Aug.	35,531	14,128	10,922	9,526	478	117,880

* For sale only.

Source: Bureau of Census

NONFERROUS FOUNDRIES, LABOR

Employment, Hours and Earnings

	Production and Related Workers				
	All Employees Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1948	85.2	73.2	\$39.96	40.0	\$1.499
1949	75.8	63.3	60.92	39.0	1.562
1950	93.0	78.8	67.65	41.5	1.630
1951:					
Jan.	109.6	94.5	72.33	42.1	1.718
Feb.	110.1	94.2	72.70	42.0	1.731
Mar.	110.7	93.4	73.12	42.0	1.741
Apr.	110.7	93.3	73.52	42.3	1.738
May	110.9	93.2	73.85	42.2	1.750
June	109.8	91.5	73.57	41.8	1.760
July	108.0	88.4	71.94	40.9	1.759
Aug.	109.1	91.0	73.29	41.5	1.768

Source: Bureau of Labor Statistics

LEAD DIECASTINGS SHIPMENTS

Lead and Lead-Base (1000 lb)

	Total Shipments
1947	14,137
1948	14,877
1949	9,101
1950	13,500
1951:	
Jan.	1,419
Feb.	1,118
March	1,782
April	2,482
May	1,912
June	1,683
July	1,327
Aug.	1,555

Source: Bureau of Census

COPPER CASTINGS SHIPMENTS

Copper and Copper-Base, 000 omitted

	Shipments				
	Sand	Perm- anent	Die	All Other	Total, All Types
1947	980,732	51,139	12,657	.....	1,051,742
1948	930,790	59,009	12,672	.....	1,030,825
1949	654,444	37,311	10,062	23,481	725,318
1950	918,883	52,756	13,224	30,816	1,015,679
1951: Jan.	92,171	6,363	1,107	3,002	102,643
Feb.	87,673	5,427	1,092	2,760	96,952
Mar.	100,221	6,405	1,214	3,047	110,887
Apr.	91,852	5,002	978	2,874	101,506
May	95,049	5,996	1,006	3,397	105,438
June	88,818	5,358	1,145	3,238	98,559
July	69,334	4,064	873	2,280	76,551
Aug.	84,720	5,097	1,081	3,545	94,443

Source: Bureau of Census

MAGNESIUM CASTINGS, ORDERS

Shipments, 000 omitted

	Shipments		Unfilled Orders*
	Total	For Sale	
1947	7,693	7,050	
1948	8,214	7,488	
1949	9,364	8,781	
1950	12,314	11,582	
1951:			
Jan.	1,840	1,739	8,616
Feb.	1,907	1,801	10,878
Mar.	2,186	2,058	12,196
Apr.	2,267	2,161	12,191
May	2,334	2,206	12,887
June	1,750	1,642	14,331
July	1,676	1,557	15,528
Aug.	2,270	2,135	16,095

* For sale only.

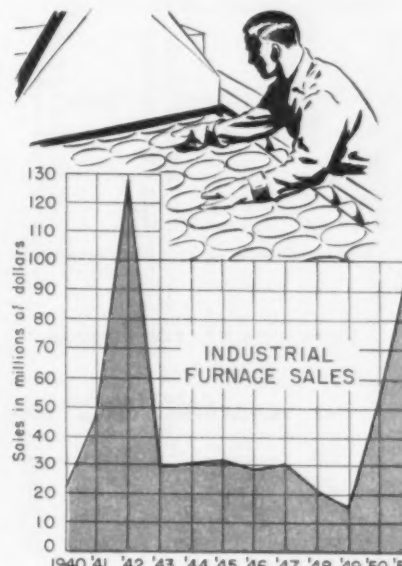
Source: Bureau of Census

ZINC CASTINGS SHIPMENTS

Zinc and Zinc-Base Alloys (1000 lb)

	Diecastings	All Other	Total
1947	429,535	8,973	438,418
1948	439,183	9,771	448,954
1949	.....	.....	374,865
1950	531,863	4,535	536,398
1951: Jan.	40,822	294	41,116
Feb.	38,764	200	38,964
Mar.	43,986	232	44,218
Apr.	43,346	167	43,513
May	43,917	270	44,187
June	41,172	169	41,341
July	33,950	114	34,064
Aug.	37,129	192	37,321

Source: Bureau of Census



Page 454 in this section contains digests of smoke control ordinances of 68 U. S. cities, compiled by THE IRON AGE with the co-operation of smoke control officials in these cities and counties. A listing of important trade associations and technical societies in the fields covered by this section begins on p. 478. . . For a calendar of meetings in the metal-working field scheduled for 1952 see p. 512.

PRESSED METAL EARNINGS

Average Hours and Earnings per Worker

	Production and Related Workers		
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1948	\$58.39	40.3	\$1.449
1949	60.30	39.7	1.519
1950	66.15	41.6	1.594
1951: Jan.	69.51	41.5	1.675
Feb.	68.76	41.3	1.689
Mar.	71.47	41.6	1.710
Apr.	70.23	41.0	1.713
May	69.92	40.4	1.706
June	71.07	41.2	1.725
July	68.61	39.8	1.742
Aug.	69.01	39.8	1.734

Source: Bureau of Labor Statistics

INDUSTRIAL FURNACE SALES

Fuel Fired and Electric Types

Year	Fuel-Fired Industrial Furnaces, including Hot Rolling Steel, \$	Electric Resistance Furnaces, \$	Total, \$
1941.....	34,124,751	13,719,111	47,843,862
1942.....	89,709,507	39,052,122	128,761,629
1943.....	16,951,800	12,955,326	29,807,126
1944.....	20,770,634	10,233,549	31,004,183
1945.....	22,102,225	9,484,210	31,586,435
1946.....	20,383,884	8,429,840	28,813,724
1947.....	22,589,770	7,799,584	30,389,354
1948.....	15,655,654	5,836,410	21,492,064
1949.....	9,982,440	5,284,021	15,266,461
1950.....	37,132,673	13,880,065	51,012,738
1951 (9 Mo.)	57,655,861	35,343,350	96,993,311

These figures constitute approximately 80% of the industry. * Includes "miscellaneous."

Source: Industrial Furnace Mfrs. Asso.

METAL POWDERS

Copper, lead, zinc, iron powder prices and shipments... Iron powder imports... Number of U. S. stamping, metal powder part shops.

IRON POWDER, AVERAGE MONTHLY PRICES

Cents per pound, F.O.B. Mill Unless Otherwise Specified

	Swedish Sponge, c.i.f. N. Y., Ocean Bags, —100 Mesh	Domestic Sponge, 98+Pct Fe, Carload Lots, —100 Mesh	Electrolytic, Annealed, 99.5+Pct Fe, —100 Mesh	Electrolytic, Unannealed, —325 Mesh 99+Pct Fe	Hydrogen Reduced, —300 Mesh 96+Pct Fe	Carbonyl, 5-10 Microns, 98-99.8+ Pct Fe
1949 Aver.....	7.8 to 9.0	9.0 to 15.0	31.0 to 39.5	48.5	63.0 to 80.0	90.0 to \$1.75
1950 Aver.....	7.4 to 9.0	9.0 to 15.0	39.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
1951						
Jan.....	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
Feb.....	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	70.0 to 1.35
March.....	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	80.5 to 1.46
April.....	7.4 to 9.0	9.0 to 15.0	36.0 to 39.5	48.5	63.0 to 80.0	83.0 to 1.48
May.....	7.4 to 9.0	9.0 to 15.2	36.0 to 39.5	48.5	63.0 to 80.0	83.0 to 1.48
June.....	7.4 to 9.0	13.8 to 16.75	41.69	54.75	63.0 to 80.0	83.0 to 1.48
July.....	7.4 to 9.0	15.5 to 17.0	42.5	53.5	63.0 to 80.0	83.0 to 1.48
Aug.....	7.4 to 9.0	15.5 to 17.0	42.5	53.5	63.0 to 80.0	83.0 to 1.48
Sept.....	7.4 to 9.0	15.5 to 17.0	42.5	53.5	63.0 to 80.0	83.0 to 1.48
Oct.....	7.4 to 9.0	15.5 to 17.0	42.5	53.5	63.0 to 80.0	83.0 to 1.48
Nov.....	7.4 to 9.0	15.5 to 17.0	42.5	53.5	63.0 to 80.0	83.0 to 1.48
Dec.....	7.4 to 9.0	15.5 to 17.0	42.5	53.5	63.0 to 80.0	83.0 to 1.48
1951 Aver.....	7.4 to 9.0	12.65 to 16.16	40.45	51.48	63.0 to 80.0	80.84 to 1.46



IMPORTS OF IRON POWDERS

Net Tons

1948.....	2,590
1949.....	3,108
1950: Sweden.....	7,513
Germany.....	73
Holland.....	21
Total.....	7,607
1951 (10 mos.): Sweden.....	10,423
Germany.....	420
Holland.....	1.5
England.....	24
Scotland.....	70
Austria.....	3
Switzerland.....	2.3
Total (10 mos.).....	10,943.8

COPPER POWDER SHIPMENTS

Net Tons

	Total	Bearings and Friction	Friction Materials	Graphite Metal Brushes	Misc.
1944.....	6,770				
1945.....	6,850				
1946.....	7,380	5,900	560	330	590
1947.....	8,700	7,170	615	385	600
1948.....	8,590	6,560	675	575	770
1949.....	7,014	4,374	1,158	450	1,032
1950.....	13,109	9,488	1,271	957	1,393
1951*.....	13,566	11,010	963	390	1,203

* Estimate.

METAL POWDER PART PLANTS

Plants With 20 Workers or More

Alabama.....	Nevada.....
Arizona.....	New Hampshire.....
Arkansas.....	New Jersey.....
California.....	New Mexico.....
Colorado.....	New York.....
Connecticut.....	North Carolina.....
Delaware.....	North Dakota.....
District of Columbia.....	Ohio.....
Florida.....	Oklahoma.....
Georgia.....	Oregon.....
Idaho.....	Pennsylvania.....
Illinois.....	Rhode Island.....
Indiana.....	South Carolina.....
Iowa.....	South Dakota.....
Kansas.....	Tennessee.....
Kentucky.....	Texas.....
Louisiana.....	Utah.....
Maine.....	Vermont.....
Maryland.....	Virginia.....
Massachusetts.....	Washington.....
Michigan.....	West Virginia.....
Minnesota.....	Wisconsin.....
Mississippi.....	Wyoming.....
Missouri.....	
Montana.....	Total.....
Nebraska.....	85

(Source: THE IRON AGE Basic Marketing Data)

AVERAGE COPPER POWDER PRICE

Cents per lb, F.O.B. Mill—100 Mesh

	Electrolytic	Reduced
1949 Average.....	29.82	30.06
1950 Average*.....	9.75	9.87
1951, monthly average*		
Jan.....	10.25	10.0
Feb.....	10.25	10.0
March.....	10.63	10.0
April.....	10.75	10.0
May.....	10.75	10.0
June.....	10.75	10.0
July.....	10.75	10.0
Aug.....	10.75	10.0
Sept.....	10.75	10.0
Oct.....	10.75	10.0
Nov.....	10.75	10.0
Dec.....	10.75	10.0
1951 Average*.....	10.67	10.0

* Change in pricing method: above price plus metal value.

SHIPMENTS OF IRON POWDER

Total Net Tons, Four Major Classes*

	Total	Bearings and Parts	Friction Ma- terials	Mag- netic Cores	Miscel- laneous
1944.....	1,720				
1945.....	1,950				
1946.....	2,485	1,350	30	415	690
1947.....	3,115	1,560	30	600	845
1948.....	3,520	1,685	25	990	820
1949.....	3,235	1,746	14	935	540
1950.....	3,942	1,570	23	1,611	738
1951†.....	3,124	1,806	3.5	845	470

* Domestic. † Ten months.

AVERAGE ZINC POWDER PRICE

Cents per lb, F.O.B. Mill—100 Mesh

1948 Average.....	15.41 to 18.71
1949 Average.....	15.41 to 18.71
1950 Average.....	20.50 to 23.85
1951, monthly average	
Jan.....	20.5 to 23.85
Feb.....	20.5 to 23.85
March.....	22.4 to 28.84
April.....	23.0 to 30.5
May.....	23.0 to 30.5
June.....	23.0 to 30.5
July.....	23.0 to 30.5
Aug.....	23.0 to 30.5
Sept.....	23.0 to 30.5
Oct.....	23.0 to 30.5
Nov.....	23.0 to 30.5
Dec.....	23.0 to 30.5
1951 Average.....	22.54 to 29.25

SHIPMENTS OF LEAD POWDER

Net Tons

	Total	Bearings	Friction Materials	Protective Coatings	Misc.
1944.....	1441				
1945.....	5195				
1946.....	905	55	195	193	462
1947.....	785*	53	165	187	380
1948.....	1040	74	319	141	506
1949.....	790	68	315	210	350
1950.....	918	112	230	132	444
1951*.....	1275	414	375	106	376

* Estimate.

STAMPING PLANTS IN U. S.

Plants With 20 Workers or More

Alabama.....	44	Nevada.....	23
Arizona.....	2	New Hampshire.....	23
Arkansas.....	13	New Jersey.....	261
California.....	507	New Mexico.....	1
Colorado.....	26	New York.....	920
Connecticut.....	324	North Carolina.....	34
Delaware.....	9	North Dakota.....	1
District of Columbia.....	5	Ohio.....	965
Florida.....	36	Oklahoma.....	27
Georgia.....	53	Oregon.....	28
Idaho.....	3	Pennsylvania.....	564
Illinois.....	1114	Rhode Island.....	138
Indiana.....	326	South Carolina.....	3
Iowa.....	113	South Dakota.....	54
Kansas.....	41	Tennessee.....	106
Kentucky.....	61	Texas.....	8
Louisiana.....	19	Utah.....	9
Maine.....	14	Vermont.....	9
Maryland.....	85	Virginia.....	36
Massachusetts.....	398	Washington.....	37
Michigan.....	685	West Virginia.....	31
Minnesota.....	131	Wisconsin.....	286
Mississippi.....	9	Wyoming.....	2
Missouri.....	192		
Montana.....		Total.....	7864
Nebraska.....	30		

(Source: THE IRON AGE Basic Marketing Data)

Number of forging, heat-treating, die-casting shops and various types of foundries in operation in the United States.

CASTING FORGING

MALLEABLE IRON FOUNDRIES

Plants With 20 Workers or More

Alabama	1	Nevada	1
Arizona	1	New Hampshire	1
Arkansas	1	New Jersey	5
California	7	New Mexico	1
Colorado	1	New York	16
Connecticut	7	North Carolina	1
Delaware	1	North Dakota	1
District of Columbia	1	Ohio	24
Florida	1	Oklahoma	1
Georgia	1	Oregon	1
Idaho	1	Pennsylvania	16
Illinois	22	Rhode Island	1
Indiana	11	South Carolina	1
Iowa	1	South Dakota	1
Kansas	1	Tennessee	4
Kentucky	1	Texas	4
Louisiana	1	Utah	1
Maine	1	Vermont	1
Maryland	1	Virginia	1
Massachusetts	4	Washington	4
Michigan	12	West Virginia	2
Minnesota	2	Wisconsin	13
Mississippi	1	Wyoming	1
Missouri	2	Total	164
Montana	1		
Nebraska	1		

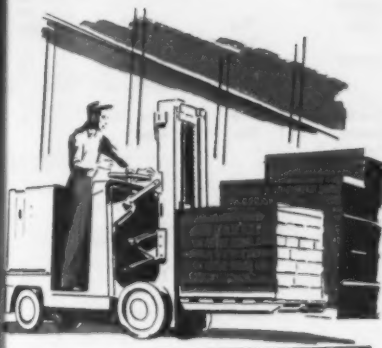
(Source: THE IRON AGE Basic Marketing Data)

NUMBER OF STEEL FOUNDRIES

Plants With 20 Workers or More

Alabama	5	Nevada	3
Arizona	2	New Hampshire	10
Arkansas	1	New Jersey	20
California	29	New Mexico	1
Colorado	4	New York	31
Connecticut	6	North Carolina	1
Delaware	3	North Dakota	1
District of Columbia	1	Ohio	1
Florida	1	Oklahoma	7
Georgia	4	Oregon	67
Idaho	24	Pennsylvania	2
Illinois	15	Rhode Island	2
Indiana	18	South Carolina	1
Iowa	3	South Dakota	3
Kansas	3	Tennessee	12
Kentucky	4	Texas	2
Louisiana	4	Utah	3
Maine	3	Vermont	16
Maryland	9	Washington	4
Massachusetts	18	West Virginia	16
Michigan	5	Wisconsin	350
Minnesota	10	Wyoming	
Mississippi	1	Total	
Missouri	1		
Montana	1		
Nebraska	1		

(Source: THE IRON AGE Basic Marketing Data)



DIECASTING SHOPS IN U. S.

Plants With 20 Workers or More

Alabama	1	Nevada	2
Arizona	2	New Hampshire	40
Arkansas	63	New Jersey	53
California	7	New Mexico	1
Colorado	22	New York	68
Connecticut	2	North Carolina	1
Delaware	1	North Dakota	1
District of Columbia	1	Ohio	39
Florida	1	Oklahoma	9
Georgia	1	Oregon	1
Idaho	93	Pennsylvania	1
Illinois	28	Rhode Island	1
Indiana	5	South Carolina	4
Iowa	1	South Dakota	6
Kansas	3	Tennessee	2
Kentucky	1	Texas	5
Louisiana	1	Utah	2
Maine	1	Vermont	1
Maryland	2	Virginia	1
Massachusetts	17	Washington	21
Michigan	53	West Virginia	1
Minnesota	13	Wisconsin	1
Mississippi	1	Wyoming	1
Missouri	19	Total	594
Montana	2		
Nebraska	4		

(Source: THE IRON AGE Basic Marketing Data)

NONFERROUS FOUNDRIES

Plants With 20 Workers or More

Alabama	16	Nevada	12
Arizona	2	New Hampshire	73
Arkansas	1	New Jersey	1
California	127	New Mexico	140
Colorado	14	New York	8
Connecticut	58	North Carolina	174
Delaware	2	North Dakota	9
District of Columbia	13	Ohio	5
Florida	18	Oklahoma	141
Georgia	16	Oregon	8
Idaho	130	Pennsylvania	6
Illinois	68	Rhode Island	16
Indiana	24	South Carolina	24
Iowa	13	South Dakota	4
Kansas	8	Tennessee	12
Kentucky	6	Texas	17
Louisiana	8	Utah	9
Maine	11	Vermont	57
Maryland	5	Washington	116
Massachusetts	67	West Virginia	23
Michigan	116	Wisconsin	1
Minnesota	23	Wyoming	1
Mississippi	32	Total	1480
Missouri	2		
Montana	8		
Nebraska	8		

(Source: THE IRON AGE Basic Marketing Data)

GRAY IRON FOUNDRIES

Plants With 20 Workers or More

Alabama	58	Nevada	16
Arizona	2	New Hampshire	72
Arkansas	4	New Jersey	1
California	88	New Mexico	140
Colorado	11	New York	29
Connecticut	40	North Carolina	1
Delaware	1	North Dakota	1
District of Columbia	12	Ohio	221
Florida	39	Oklahoma	18
Georgia	1	Oregon	15
Idaho	164	Pennsylvania	259
Illinois	99	Rhode Island	10
Indiana	49	South Carolina	9
Iowa	29	South Dakota	1
Kansas	24	Tennessee	45
Kentucky	19	Texas	38
Louisiana	10	Utah	7
Maine	8	Vermont	12
Maryland	17	Virginia	31
Massachusetts	78	Washington	24
Michigan	143	West Virginia	13
Minnesota	45	Wisconsin	93
Mississippi	5	Wyoming	1
Missouri	41	Total	2025
Montana	2		
Nebraska	9		

(Source: THE IRON AGE Basic Marketing Data)

FORGE SHOPS IN OPERATION

Plants With 20 Workers or More

Alabama	21	Nevada	9
Arizona	1	New Hampshire	77
Arkansas	3	New Jersey	134
California	79	New Mexico	10
Colorado	53	New York	200
Connecticut	3	North Carolina	8
Delaware	4	North Dakota	14
District of Columbia	12	Ohio	198
Florida	18	Oklahoma	13
Georgia	3	Oregon	1
Idaho	140	Pennsylvania	20
Illinois	59	Rhode Island	42
Indiana	12	South Carolina	8
Iowa	18	South Dakota	15
Kansas	10	Tennessee	8
Kentucky	18	Texas	15
Louisiana	10	Utah	21
Maine	8	Vermont	24
Maryland	15	Virginia	44
Massachusetts	100	Washington	1
Michigan	104	West Virginia	1624
Minnesota	32	Wisconsin	
Mississippi	5	Wyoming	
Missouri	33	Total	
Montana	3		
Nebraska	7		

(Source: THE IRON AGE Basic Marketing Data)

SHEET METAL DEPARTMENTS

Plants With 20 Workers or More

Alabama	52	Nevada	1
Arizona	8	New Hampshire	12
Arkansas	9	New Jersey	285
California	415	New Mexico	3
Colorado	34	New York	618
Connecticut	120	North Carolina	49
Delaware	13	North Dakota	3
District of Columbia	6	Ohio	696
Florida	38	Oklahoma	49
Georgia	63	Oregon	41
Idaho	4	Pennsylvania	455
Illinois	717	Rhode Island	25
Indiana	242	South Carolina	6
Iowa	108	South Dakota	6
Kansas	54	Tennessee	64
Kentucky	25	Texas	134
Louisiana	12	Utah	9
Maine	79	Vermont	13
Maryland	238	Virginia	39
Massachusetts	440	Washington	66
Michigan	118	West Virginia	27
Minnesota	8	Wisconsin	234
Mississippi	149	Wyoming	2
Missouri	3	Total	5890
Montana	41		
Nebraska	41		

(Source: THE IRON AGE Basic Marketing Data)

HEAT TREATING SHOPS

Plants With 20 Workers or More

Alabama	36	Nevada	22
Arizona	7	New Hampshire	271
Arkansas	240	New Jersey	523
California	21	New Mexico	29
Colorado	220	New York	1
Connecticut	8	North Carolina	624
Delaware	15	North Dakota	28
District of Columbia	26	Ohio	31
Florida	2	Oklahoma	498
Georgia	514	Rhode Island	75
Idaho	208	South Carolina	3
Illinois	64	South Dakota	38
Indiana	19	Tennessee	69
Iowa	26	Texas	9
Kansas	10	Utah	20
Kentucky	45	Vermont	21
Louisiana	283	Washington	46
Maine	441	West Virginia	25
Maryland	59	Wisconsin	142
Massachusetts	5	Wyoming	1
Michigan	117	Total	4869
Minnesota	1		
Mississippi	15		
Missouri	15		
Montana	15		
Nebraska	15		

(Source: THE IRON AGE Basic Marketing Data)

SMOKE CONTROL

How sixty-eight American municipalities
and counties control air contamination.

CHECK LIST OF AIR POLLUTION CONTROL ORDINANCES

Based on a Special Survey by THE IRON AGE

City	Date Ordinance Adopted	Air Contaminants Prohibited ⁴	Test Method ⁵	Dense Smoke Standard ⁶	Installation Control	Inspection Frequency	Sales Reports Required	Type of Fuel Control ⁷	Board Empowered to Make Rules
Akron	1949	DS FA (8) F	ASME	R3	Yes	Annual			Yes
Allegheny County, Pa.	1949	DS FA (12)	ASME	R2**	Yes		Yes	User-Sales	Yes
Atlanta	1941A	DS FA (2)		R3	Yes		Yes		Yes
Baltimore	1939	DS FA (8)	ASME	R2	Yes	Annual	Yes	User-Sales	Yes
Birmingham	1947	DS		R3	Yes			User	Yes
Boston	1947	DS FA		R2					Yes
Buffalo	1947	DS FA F		R3	Yes	Annual	Yes	User-Sales	Yes
Camden	1948	DS FA F		R2	Yes	Annual	Yes	User	Yes
Charlotte	1950	DS FA (3-8) F	ASME	R2	Yes	Periodic			
Chattanooga	1949A	DS FA F		R2	Yes	Annual			
Chicago	1947	DS FA F		R3	Yes	Annual	Yes	User	Yes
Cincinnati	1947	DS FA (3-7) F		U4	Yes	Annual		User-Sales	Yes
Cleveland	1951	DS FA (5) F	ASME	R2	Yes	Annual		User	Yes
Columbus	1949	DS FA (8) F	ASME	R2	Yes	Annual	Yes	User-Sales	Yes
Dayton	1	DS FA (3-7)	ASME	R2	Yes	Periodic			Yes
Denver	1948	DS FA F		R2	Yes			User	Yes
Des Moines	1947	DS		R3	Yes				
Detroit	1947	DS FA (4) F		R2	Yes	Annual	Yes	User-Sales	Yes
Duluth	1931	DS F		R3	Yes				
Erie	1951	DS FA F		R2					
Evansville	1949A	DS		R2	Yes				Yes
Fort Wayne	1949	DS FA F		R2					Yes
Gary	1917	DS FA		None					
Grand Rapids	1926	DS FA		R3	Yes				
Harrisburg	1920A	DS		R3	Yes	Periodic			
Hartford	1937	DS		R3**	Yes				
Houston	1942	DS						User	
Indianapolis	1948A	DS FA (9) F	ASME	R2	Yes	Annual	Yes	User-Sales	Yes
Jacksonville	1945	DS FA		None					
Jefferson City	1945	DS FA F		R2	Yes	Annual			Yes
Kansas City	1948	DS FA F		R3	Yes	Annual		User	Yes
Knoxville	1950	DS FA F	ASME	R2	Yes		Yes		
Lansing	1937	DS		U1					Yes
Los Angeles County	1951	DS FA (1) F		R2	Yes	Periodical		User	Yes
Louisville	1949	DS FA (7-8) F		R2	Yes	Annual		User	Yes
Memphis	3	DS FA F		R3	Yes			User	
Miami	1941	DS FA F		R3	Yes	Quarterly			
Milwaukee City	1948	DS FA (8) F	ASME	R2	Yes	Annual	Yes	User-Sales	Yes
Minneapolis	1951	DS FA F	ASME	R3	Yes			User	
Nashville	1947	DS FA (6) F	ASME	R2	Yes	Annual	Yes	User-Sales	Yes
New Orleans	1934	DS		None	Yes				
New York	1949	DS FA F	Visual-ASME	Visual	Yes	Periodic		User	Yes
Newark	1938	DS FA F		R2	Yes			User	Yes
Oakland	1932	DS F		None					
Omaha	1947	DS FA (8) F	ASME	R2	Yes	Annual	Yes		Yes
Peoria	1947	DS FA F, 4009		R3	Yes	Annual	Yes		Yes
Philadelphia	1949	DS FA (8) F	ASME	R2	Yes	Periodic			Yes
Pittsburgh (see Allegheny County)									
Portland, Ore.	1943A	DS FA		R3**				User-Sales	
Providence	1947	DS FA (8) F		R2	Yes	Annual	Yes	User-Sales	Yes
Reading	1948	DS FA IF		R2	Yes	Annual	Yes	Sales	Yes
Richmond	1947	DS FA (11)	ASME	R3	Yes		Yes		Yes
Rochester	1951	DS FA (7)	ASME	R2					
Salt Lake City	1941	DS FA F		R2	Yes		Yes	User	
San Francisco	3	DS FA		R3**					
Spokane	3	DS		None					
Springfield, Mass.	1900	DS		None					
St. Louis	1948	DS FA (10) F	ASME	R2	Yes		Yes	User-Sales	Yes
St. Paul	1925	DS		R3					
Syracuse	1948	DS FA (3-8) F		R2	Yes		Yes	User-Sales	
Tacoma	1950	DS FA (7-3) F		R2	Yes				Yes
Tampa	1943	None		Yes					
Toledo	1950	DS FA (8) F	ASME	R2	Yes	Annual			Yes
Toronto	1949	DS FA (3-8) F	ASME	R2 (10) R3 (6)	Yes	Periodic			Yes
Trenton	1941	DS FA		None					
Utica	1949	DS FA (6)		R2					
Wilmington	1946	DS		R3					
Yonkers	1950	DS FA F		R2	Yes				
Youngstown	1950	DS FA (6) F	ASME	R2	Yes	Annual	Yes	User-Sales	Yes

EXPLANATORY NOTES

"A" following year of adoption indicates ordinance being amended.

¹ Proposed ordinance, not formally approved.

² Smoke regulations part of health code, date not given.

³ Smoke regulations part of fire code, date not given.

⁴ "DS" refers to dense smoke, "FA" to fly ash or other gas or air-borne particles, "F" to fumes. The figure in parentheses or asterisk refers to the respective municipality's limit on the emission of solids into the atmosphere. Some of these limits are based primarily on particle size (from 325 mesh to 1 micron) while others specify limits on weight that may be emitted.

⁵ Those marked "ASME" use the American Society of Mechanical Engineers test code. Others will apparently accept any recognized or accurate method.

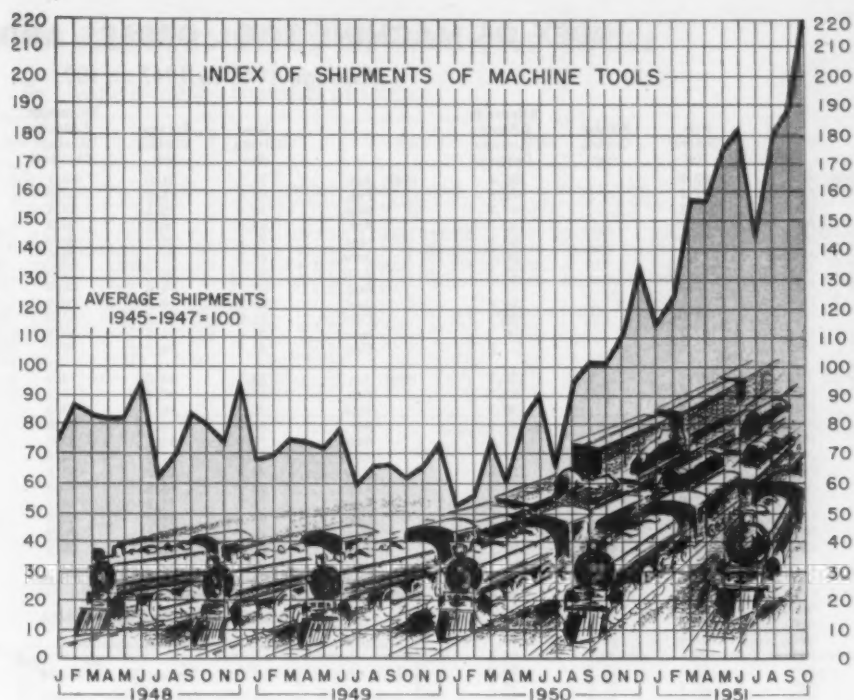
⁶ "R" stands for the Ringelmann scale, "U" for the Umbrascope. Smoke density comparable to one thickness of 60 pct opacity glass equals "R1", two thicknesses "R2", three thicknesses "R3", etc.

⁷ "User" indicates that person or plant burning fuel is subjected to regulations governing type, method of burning and other such factors. "Sales" indicates that fuel distributors are also regulated, under licensing or some other such arrangement.

MACHINERY, MACHINE TOOLS, WELDING EQUIPMENT, MOTORS

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PRODUCTION MACHINERY

Machine tool orders and shipments . . . Ball and roller bearing imports . . . Machine tool shipments by states . . . Motor exports

INDEX OF MACHINE TOOL ORDERS AND SHIPMENTS

Average 1945 to 1947 = 100

	New Orders, Net	Foreign Orders, Net	Shipments 3 Month Average Centered		New Orders, Net	Foreign Orders, Net	Shipments 3 Month Average Centered		New Orders, Net	Foreign Orders, Net	Shipments 3 Month Average Centered
1944: Jan.....	89.9		188.8	1947: Jan.....	71.1	21.0	93.1	1949: Jan.....	87.0	21.9	68.8
Feb.....	112.3		178.8	Feb.....	63.8	18.8	94.8	Feb.....	90.9	26.5	70.3
Mar.....	139.3		181.7	Mar.....	74.3	20.1	95.4	Mar.....	93.5	22.3	75.8
Apr.....	187.7		152.3	Apr.....	69.8	18.8	94.3	Apr.....	70.1	23.1	74.7
May.....	199.5		140.5	May.....	78.9	18.3	88.9	May.....	63.7	15.8	72.8
June.....	188.1		130.8	June.....	90.9	17.2	79.5	June.....	53.6	15.7	78.0
July.....	108.9		123.3	July.....	81.1	18.7	71.0	July.....	48.0	14.0	68.7
Aug.....	137.3		117.1	Aug.....	62.1	14.6	68.6	Aug.....	51.5	18.8	67.3
Sept.....	112.3		124.4	Sept.....	63.7	14.7	78.5	Sept.....	57.7	13.7	67.8
Oct.....	193.8		123.7	Oct.....	81.0	18.0	85.5	Oct.....	58.8	13.7	82.3
Nov.....	197.2		126.1	Nov.....	75.6	11.5	92.6	Nov.....	84.3	17.0	67.8
Dec.....	210.0		127.2	Dec.....	81.1	14.8	86.1	Dec.....	82.5	22.4	75.7
1945: Jan.....	197.7		128.7	1948: Jan.....	83.1	14.0	75.3	1950: Jan.....	99.7	26.7	82.8
Feb.....	191.6		132.1	Feb.....	73.3	12.7	87.1	Feb.....	89.2	16.8	86.1
Mar.....	160.5		136.3	Mar.....	86.3	16.1	83.6	Mar.....	107.4	24.9	75.3
Apr.....	94.9		141.2	Apr.....	86.3	14.1	82.0	Apr.....	98.9	17.4	61.8
May.....	99.3		143.0	May.....	73.5	11.4	82.6	May.....	116.4	18.4	82.5
June.....	72.5		134.0	June.....	83.4	11.9	94.4	June.....	124.1	23.0	81.9
July.....	53.9		124.8	July.....	74.0	13.3	62.4	July.....	253.1	22.3	68.3
Aug.....	11.5		108.3	Aug.....	73.7	13.6	69.8	Aug.....	305.1	34.2	96.7
Sept.....	51.8		100.3	Sept.....	71.1	11.6	84.7	Sept.....	280.6	27.2	181.6
Oct.....	64.4	11.3	99.1	Oct.....	67.4	14.0	80.4	Oct.....	289.6	48.8	100.9
Nov.....	79.0	16.7	94.3	Nov.....	72.2	18.1	78.2	Nov.....	291.9		119.9
Dec.....	112.6	49.8	93.1	Dec.....	76.7	18.2	86.9	Dec.....	410.1		138.7
1946: Jan.....	115.8	44.3	93.9	* Beginning January 1949, net shipment index reported, instead of 3-month centered shipment average.				1951: Jan.....	475.4	61.3	114.3
Feb.....	79.8	24.0	98.4	Source: National Machine Tool Builders Assn.				Feb.....	615.5	78.2	123.8
Mar.....	100.6	26.8	96.1	Machinery editor George Elwers sums up machine tool high spots of 1951, looks into '52—p. 239.				Mar.....	590.3	102.1	156.9
Apr.....	123.4	25.3	96.1					Apr.....	516.1	66.1	157.7
May.....	107.9	24.1	97.7					May.....	483.0	35.7	175.1
June.....	109.1	35.7	90.8					June.....	558.8	56.4	182.8
July.....	99.0	29.3	90.2					July.....	490.6	54.9	144.7
Aug.....	99.9	22.4	86.1					Aug.....	488.9	58.7	178.9
Sept.....	86.4	18.3	93.3					Sept.....	380.2	27.0	189.8
Oct.....	85.3	22.1	92.6					Oct.....	398.6	40.7	220.7
Nov.....	73.2	24.5	95.2								
Dec.....	72.7	21.8	92.4								

MACHINE TOOL MANUFACTURE BY STATES

Shipments in Thousands of Dollars

	1946	1947	1948	1949	1950
New England Total.....	\$78,043	\$133,187	\$63,446	\$56,494	\$80,052
Connecticut.....	28,548	53,044	21,708	21,256	28,529
Massachusetts.....	24,582	25,068	19,949	18,090	24,073
New Hampshire, Rhode Island, and Vermont.....	24,915	55,075	21,789	17,148	27,450
Middle Atlantic Total.....	33,894	53,597	29,736	26,893	29,845
New Jersey.....	5,573	11,837	4,299	3,118	3,220
New York.....	15,561	29,370	14,573	13,786	15,306
Pennsylvania.....	12,760	12,390	10,864	9,989	11,319
East North Central Total.....	205,542	298,766	175,325	149,641	182,679
Michigan.....	28,256	66,837	22,735	20,593	30,764
Ohio.....	109,473	133,662	94,913	81,842	94,272
Wisconsin.....	24,924	*	19,532	18,609	24,328
Illinois and Indiana.....	42,889	*	38,145	28,597	33,515
West North Central Total.....	8,708	12,819	4,641	5,021	6,871
Minnesota.....	5,417	4,491	2,444	1,804	3,655
Missouri.....	2,459	*	1,635	2,028	1,820
Iowa, Kansas, Nebraska, South Dakota.....	832	*	562	1,189	1,396
Pacific States.....	1,755	*	1,658	915	1,144
All Others.....	3,217	*	2,715	2,408	2,262
U. S. Total.....	\$331,159	\$501,882	\$277,521	\$241,370	\$303,053

* Breakdown not available.

Source: Dept. of Commerce

ROLLER BEARING IMPORTS

Value in Thousands of Dollars

1938.....	\$334	1945.....	\$ 26
1939.....	181	1946.....	167
1940.....	213	1947.....	67
1941.....	138	1948.....	128
1942.....	28	1949.....	38
1943.....	8	1950.....	117
1944.....	14	1951 (7 months).....	726

Source: Bureau of Census

BALL BEARING IMPORTS

Value in Thousands of Dollars

1938.....	\$380	1945.....	\$85
1939.....	267	1946.....	107
1940.....	145	1947.....	39
1941.....	676	1948.....	55
1942.....	54	1949.....	49
1943.....	20	1950.....	156
1944.....	481	1951 (7 months).....	982

Source: Bureau of Census

ELECTRIC MOTOR EXPORTS

Value in Thousands of Dollars

	Fractional Hp 1/2 Hp and Under		Fractional Hp Over 1/2 and Under 1 Hp	
	No.	Value	No.	Value
1939.....	135,544	849	17,265	340
1940.....	154,395	1,005	15,225	300
1941.....	198,735	1,250	28,863	601
1942.....	132,523	735	16,532	462
1943.....	69,974	569	8,991	291
1944.....	65,300	738	15,463	408
1945.....	75,212	878	24,384	621
1946.....	158,222	1,308	37,200	1,050
1947.....	275,255	3,002	60,303	3,078
1948.....	248,717	3,353	90,739	2,985
1949.....	284,663	2,372	40,810	1,538
1950.....	281,976	2,779	32,077	1,120
1951 (7 Months).....	240,125	2,416	25,148	819

	Stationary, 1 to 200 Hp		Stationary, Over 200 Hp	
	No.	Value	No.	Value
1939.....	12,654	1,480	100	472
1940.....	15,664	2,485	131	585
1941.....	28,626	2,855	167	1,061
1942.....	25,712	3,114	73	265
1943.....	37,136	5,064	235	1,203
1944.....	40,540	7,514	577	3,636
1945.....	54,434	9,061	338	1,988
1946.....	64,871	9,374	439	2,283
1947.....	108,747	13,479	538	2,846
1948.....	93,183	15,627	432	3,084
1949.....	48,041	14,008	511	7,743
1950.....	28,643	7,887	374	6,946
1951 (7 Months).....	18,969	5,396	236	2,529

Source: Dept. of Commerce

Machine tool production by types . . . Index of gear orders . . . Machinery manufacturers' sales, wages, taxes, profits, dividends

PRODUCTION MACHINERY

PRODUCTION OF SELECTED TYPES OF MACHINE TOOLS

By Number and in Thousands of Dollars

	1944		1945		1946		1947		1948		1949		1950	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Horizontal and Vertical Boring Machines.....	3,070	\$44,321	1,901	\$29,415	1,888	\$27,454	1,444	\$25,825	1,288	\$24,098	1,212	\$29,430	1,333	\$26,949
Horizontal Vertical and Radial Drills.....	21,994	46,623	11,731	22,794	33,970	33,517	33,517	32,816	6,305	25,271	9,000	32,776	9,000	32,776
Gear Cutting Machines.....	2,683	28,962	1,296	11,443	1,852	17,820	1,682	17,719	1,367	18,407	1,095	14,231	1,498	19,819
Grinding Machines.....	21,687	85,433	10,741	43,413	97,799	57,123	56,384	98,702	47,294	64,257	45,660	79,146	60,557	60,557
Honing and Lapping Machines.....	43,209	168,780	23,929	93,688	42,927	103,324	92,908	29,322	81,106	18,631	62,289	30,021	79,426	79,426
Lathes.....	10,975	71,015	5,799	35,407	9,929	41,155	7,504	35,278	6,064	34,914	4,397	31,400	5,486	35,827
Milling Machines.....	418	3,151	281	2,222	573	4,057	532	4,956	343	3,779	290	3,411	363	4,862
Broaching Machines.....	344	10,962	226	7,344	206	4,853	152	4,018	157	4,828	99	3,899	84	3,053
Planers.....					2,110	7,159	1,767	6,880	1,369	5,826	666	2,831	770	3,362
Shapers and Slotters.....					475	1,640	618	2,363	533	2,286	469	3,065	10,777	6,968
Threading Machines.....														

Source: Department of Commerce and War Production Board

INDEX OF GEAR ORDERS

Average Sales 1935 to 1939 = 100

	January	February	March	April	May	June	July	August	September	October	November	December
1937.....	150.5	127.8	202.5	167.7	125.6	135.5	129.2	131.3	125.7	148.2	132.9	100.4
1938.....	86.7	78.9	93.5	72.1	68.3	69.9	68.3	75.3	84.8	72.2	68.8	77.3
1939.....	87.7	84.3	105.0	88.7	90.7	93.5	89.6	93.7	125.5	133.3	128.6	110.0
1940.....	126.5	113.4	114.4	128.5	130.9	126.9	132.9	184.4	177.3	198.0	170.1	202.1
1941.....	251.4	557.1	392.0	263.4	246.1	269.3	282.5	257.1	216.1	240.4	241.0	233.9
1942.....	296.9	323.4	455.3	376.1	430.4	382.7	346.7	395.8	354.9	228.4	329.9	302.2
1943.....	326.0	365.8	417.0	257.4	376.9	472.5	424.8	347.8	380.0	390.6	246.9	411.2
1944.....	252.5	203.3	418.8	247.4	323.4	274.5	221.4	220.6	285.5	279.0	220.3	226.9
1945.....	299.2	261.8	345.8	300.5	227.7	240.1	203.5	154.6	186.9	240.2	234.3	212.8
1946.....	265.8	225.4	265.9	290.9	258.8	279.0	362.2	330.9	292.9	245.4	280.9	386.1
1947.....	317.0	303.0	342.9	346.2	317.2	278.0	278.5	261.8	297.7	317.7	356.8	343.6
1948.....	346.8	324.4	369.0	320.9	283.6	324.1	348.4	335.6	320.4	333.3	309.0	325.9
1949.....	320.7	282.3	299.1	339.0	250.1	227.8	193.1	262.0	224.9	242.3	230.7	242.8
1950.....	280.2	272.9	358.4	328.6	363.1	401.0	410.7	617.4	654.5	564.8	554.9	680.4
1951.....	764.6	809.1	830.7	742.5	667.1	800.9	589.1	564.2	630.1	703.4	.....	.....

Source: American Gear Manufacturers Association

MACHINERY MAKERS' SALES

Except Electrical—in Millions

	Sales	Profits,* After Taxes	Profits,* Pct of Sales
1930.....	\$3,498	\$149	\$4.3
1931.....	2,295	— 79	— 3.4
1932.....	1,342	— 213	— 15.9
1933.....	1,458	— 45	— 3.1
1934.....	1,898	85	4.5
1935.....	2,419	183	6.7
1936.....	3,359	284	8.5
1937.....	4,144	354	8.5
1938.....	3,008	154	5.1
1939.....	3,463	261	7.5
1940.....	4,588	448	9.8
1941.....	7,222	689	9.3
1942.....	9,437	874	6.1
1943.....	10,732	494	4.5
1944.....	11,012	555	5.0
1945.....	9,801	332	3.4
1946.....	9,117	378	4.2
1947.....	13,145	910	6.9
1948.....	14,994	1,092	7.3
1949.....	13,139	843	6.4
1950.....	14,917	1,068	7.2

* Includes inventory profit adjustment in years prior to 1944.

Source: Department of Commerce

FINANCIAL DATA ON MACHINERY MANUFACTURERS

Except Electrical—Millions of Dollars

	Total Income	Wages and Salaries	Interest	Taxes, Incl. Income and Excess Profit	Corporate Profits after Taxes			Income of Unin- corporated Enterprises
					Total Profit	Dividends	Undis- tributed Profits	
1930.....	\$1,485	\$1,184	—\$22	\$36	\$271	\$214	\$57	\$16
1931.....	755	782	—23	13	—19	137	—156	2
1932.....	298	498	—21	5	—179	70	—249	—3
1933.....	476	500	—19	11	—67	47	—114	1
1934.....	735	685	—18	26	35	81	—46	7
1935.....	1,021	831	—18	38	158	105	53	12
1936.....	1,398	1,048	—16	73	275	182	93	20
1937.....	1,759	1,389	—12	101	258	220	38	23
1938.....	1,247	1,007	—16	48	196	140	56	14
1939.....	1,492	1,165	—16	68	258	154	104	19
1940.....	2,181	1,502	—19	240	428	200	228	32
1941.....	3,850	2,430	—22	774	611	238	373	57
1942.....	5,459	3,585	—27	1,076	561	211	350	145
1943.....	6,037	4,162	—24	1,017	498	188	310	231
1944.....	6,000	4,180	—17	818	555	189	366	300
1945.....	5,191	3,900	—14	563	332	162	150	287
1946.....	4,829	3,887	—23	358	378	230	148	195
1947.....	6,324	4,621	— 9	630	910	299	611	145
1948.....	7,115	5,359	—10	732	1,082	355	727	125
1949.....	6,324	4,653	— 9	578	843	380	463	80
1950.....	7,352	5,211	—16	926	1,068	429	639	115

Source: Department of Commerce

Machine tool labor . . . Sales of industrial trucks and conveyor equipment . . . Steel used by makers of electrical equipment.

PRODUCTION MACHINERY

MACHINE TOOL LABOR

Workers in Machine Tool Industry

Production and Related Workers

Year	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Production Workers (thousands)
1947	\$57.75	42.4	\$1.362	54.9
1948	61.57	42.2	1.459	48.9
1949	59.15	39.3	1.505	39.8
1950	69.72	43.2	1.614	41.2
1951: Jan.	81.78	47.3	1.729	53.2
Feb.	82.65	47.5	1.740	56.7
Mar.	82.90	47.4	1.749	57.4
April	84.13	47.8	1.780	58.4
May	84.38	47.7	1.789	58.5
June	83.89	47.4	1.772	59.6
July	81.70	46.5	1.757	60.5
Aug.	86.35	47.0	1.816	53.9

Source: Bureau of Labor Statistics

INDUSTRIAL TRUCK SHIPMENTS

Electric Powered—No. of Units

Year	Total	Domestic	Export
1935	925	850	75
1936	1,250	1,165	85
1937	1,850	1,740	110
1938	840	670	170
1939	1,080	910	170
1940	1,775	1,570	145
1941	3,095	2,830	250
1942	4,570	4,370	205
1943	4,490	4,285	215
1944	4,775	4,380	395
1945	3,850	3,625	225
1946	2,870	2,715	150
1947	4,130	3,565	570
1948	3,450	2,900	545
1949	2,601	2,251	350
1950	2,808	2,486	322
1951*	4,537	4,001	536

* Nine months.

Source: Electrical Industrial Truck Assn.

STEEL USED BY ELECTRICAL EQUIPMENT MAKERS

Mill Shipments—Net Tons

Item	1947	1948	1949	1950	1951 9 Months
Ingot, blooms, billets, slabs, sheet bars, and seamless tube rounds	38,423	11,451	3,537	2,482	2,138
Wire rods	27,086	15,794	7,040	10,861	6,035
Structural shapes	43,223	27,211	18,892	20,714	22,078
Plates (sheared and universal)	145,720	106,677	128,880	142,606	108,306
Track spikes		8			
Bars:					
Hot-rolled	103,346	109,706	74,741	111,440	98,444
Cold-finished	44,341	38,452	24,450	41,021	26,787
Concrete reinforcing					
Tool steel	342	257	129	133	142
Pipe and tubes:					
Butt weld	115,468				
Lap weld	13,132	138,827	127,995	181,748	169,395
Electric weld	2,103				
Seamless	1,393				
Conduit	34,357	48,949	32,887		
Mechanical and pressure tubing	5,577	8,373	7,329	11,429	839
Wire:					
Drawn	58,643	57,129	62,254	78,443	66,060
Nails and staples	429	847	538	587	428
Black plate, ordinary	1,781	4,277	2,984	8,207	4,359
Tin and terneplate:					
Hot dip	1,033	1,030	1,429	3,691	940
Electrolytic	1,544	1,017	303	889	568
Hot-rolled sheets	245,313	230,652	134,111	173,724	162,566
Cold-rolled sheets	122,030	139,197	90,538	160,954	187,432
Coated sheets	31,463	24,856	19,101	33,825	24,831
Electrical sheets and strip	436,614	450,893	342,529	582,995	485,442
Enameling sheets	2,744	3,606	1,342	5,174	3,229
Hot-rolled strip	78,885	81,159	54,235	76,252	56,961
Cold-rolled strip	42,530	94,118	69,085	169,768	98,671
Wheels		76	236		3
Axles		8			
All other		140			
Total—steel products	1,585,520	1,594,760	1,209,027	1,636,632	1,529,262

Source: American Iron & Steel Institute

A list of important trade associations and technical societies in the metalworking field begins on p. 478. A special section on defense controls starts on p. 327. It contains a digest of "M" orders and CMP regulations, plus a directory of controls officials. "Defense Controls Guide" starts on p. 327.

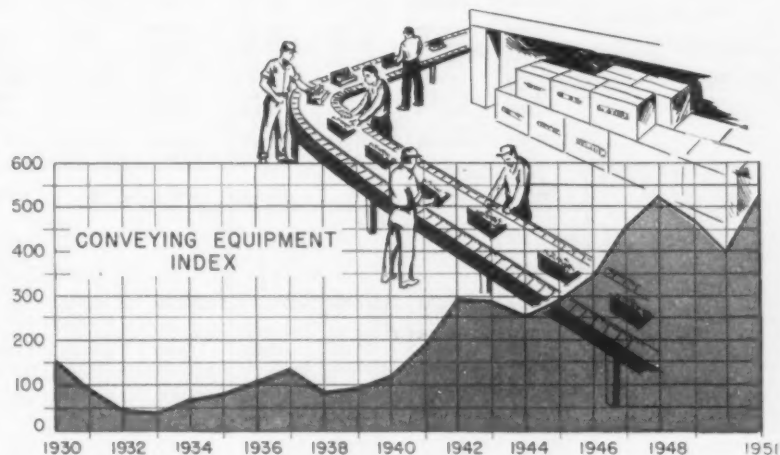
CONVEYING EQUIPMENT INDEX

Average Sales 1935 to 1948 = 100

Year	Index	Year	Index
1929	191	1940	114
1930	154	1941	186
1931	84	1942	267
1932	47	1943	282
1933	44	1944	255
1934	64	1945	289
1935	77	1946	348
1936	104	1947	458
1937	133	1948	522
1938	88	1949	489
1939	96	1950	409
		1951*	546

* Nine months.

Source: Conveyor Equipment Mfrs. Assn.



PRODUCTION MACHINERY

Machine tool exports in dollar volume by
destination and dollar volume by types

MACHINE TOOL EXPORTS

By Types—In Thousands of Dollars

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951*
Engine Lathes Including Tool Room	1,369	2,825	3,649	6,644	6,534	16,025	13,094	12,939	23,056	19,377	7,918	8,872	7,707	6,335	6,603	3,894	2,548
Bench Lathes	881	1,847	3,839	5,986	7,486	17,844	18,162	21,824	33,997	10,829	784	1,423	2,332	1,269	1,119	842	425
Turret Lathes Including Vertical											2,576	2,793	2,824	811	1,977	1,968	1,008
Ram and Saddle Type Turret Lathes											1,893	4,070	3,888	2,299	1,879	2,012	386
Automatic Chucking and Between-Centers Lathes									10,407	5,821	2,112	5,377	6,798	1,745	3,760	5,438	3,925
Polishing and Buffing Machines									1,968	1,077	1,229	2,113	2,943	1,272	1,040	595	346
Other Lathes	945	1,337	1,420	2,166	3,399	14,138	11,160	11,649	6,910	9,469	3,062	6,171	5,661	2,612	1,241	423	132
Vertical Boring and Turning Mills							10,139	7,495	4,445	7,858	5,820	2,970	2,459	1,727	2,201	2,485	425
Other Boring Machines Including Precision	1,061	1,801	2,362	3,628	5,248	10,112			5,607	6,040	4,680	3,309	3,110	1,727	2,178	2,487	1,315
Tapping and Threading Machines									4,650	1,062	912	1,375	1,519	1,568	2,809	2,284	1,201
Automatic Screw Machines, Bar	1,391	2,236	3,759	4,392	5,605	20,036	17,657	16,137	17,579	15,706	783	2,258	3,288	2,905	5,372	3,958	2,521
Knee and Column Type Milling Machines	962	1,168	3,599	4,629	6,689	15,191	19,668	17,326	13,921	2,990	2,533	7,818	4,813	2,701	3,925	2,958	1,139
Other Milling Machines	2,005	2,458	3,639	9,955	12,563	23,831	27,865	18,751	24,499	14,547	5,376	10,868	8,589	5,487	4,175	5,170	3,698
Gear Cutting Machines	1,441	2,126	2,606	3,106	3,988	7,681	3,985	1,765	6,024	4,379	3,225	3,333	8,221	4,976	4,741	5,381	2,989
Sensitive Drilling Machines, Except Bench							3,690	2,824	1,911	677	1,129	1,065	1,539	1,098	1,010	827	234
Radial Drilling Machines	173	226	606	864	977	3,026	1,562	1,557	3,587	2,988	3,002	3,766	2,404	1,107	964	941	137
Other Drilling Machines	1,730	2,321	2,527	2,824	3,147	10,245	6,987	5,689	6,211	1,846	1,299	2,557	3,313	1,346	1,672	2,439	963
Planers	577	449	1,050	2,794	4,020	5,969	1,924	4,246	2,180	8,891	6,235	4,489	2,511	1,609	1,788	1,290	636
Shapers							2,469	3,298	3,243	1,731	3,162	2,109	1,183	934	587	582	582
Surface Grinders	934	1,081	1,746	2,769	2,559	5,600	5,450	5,587	5,429	4,218	1,889	3,466	3,482	2,003	2,543	1,962	977
External Grinders	890	1,039	1,568	4,082	3,963	7,136	5,824	3,660	9,214	5,682	2,810	3,412	3,183	1,217	3,590	3,605	1,430
Internal Grinders	1,088	1,259	2,451	3,990	4,218	8,294	3,294	3,000	5,614	2,934	1,554	1,972	2,673	1,195	2,360	1,871	1,251
Tool and Cutter, and Universal Cylindrical Grinders	1,236	1,552	2,002	3,267	3,891	7,927	5,999	5,475	7,988	7,167	763	2,090	1,823	1,339	1,130	1,057	726
Gear Tooth Grinders									989	1,725	185	1,658	493	151	273	134	45
Honing and Lapping Machines									1,435	668	558	525	745	427	901	999	1,161
Thread Grinding Machines									3,528	3,631	331	462	346	137	335	447	105
Other Grinding Machines	688	1,088	1,823	3,417	5,478	12,494	7,586	14,332	15,251	6,969	4,085	3,670	4,655	3,338	2,247	1,523	989
Horizontal Boring Drilling and Milling Machines									6,602	10,970	4,105	7,010	2,875	2,426	3,689	3,317	1,989
Other Gear Honing and Finishing Machines											335	1,072	1,263	918	397	653	790
Broaching Machines									2,137	1,073	377	527	1,338	554	1,268	1,627	911
All Other Machine Tools									4,718	3,423	2,845	2,799	4,482	3,256	2,188	1,755	980
Total	17,352	24,854	38,445	64,516	79,767	185,554	166,533	157,534	237,122	163,599	78,487	110,036	105,328	62,806	72,621	66,493	36,961

* Seven months.

MACHINE TOOL EXPORTS

By Country of Destination—In Dollars

	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
France	2,986,662	3,592,614	1,992,599	759,537	526,257	405,427	1,975,837	1,451,995	1,400,987	3,466,243	4,287,101	15,769,287
Germany	1,715,764	1,362,332	587,683	793,569	72,836	221,762	396,234	272,731	85,174	167,425	901,531	469,487
Italy	669,615	1,141,937	580,466	356,591	252,761	282,415	496,933	3,165,623	1,165,769	1,244,056	748,165	813,992
Poland and Danzig	71,765	72,163		52,938	21,776	320,265	113,927	235,930	264,479	574,272	1,114,347	724,892
Russia	823,545	1,531,371	7,216,773	11,678,155	1,952,753	343,299	2,255,441	4,563,153	7,250,277	4,071,115	24,216,444	14,327,013
Sweden	427,075	897,584	376,004	165,648	23,883	52,570	325,710	526,722	593,572	1,008,294	672,932	851,559
United Kingdom	2,435,193	3,961,339	2,559,999	2,295,564	1,469,589	1,115,904	2,676,245	3,086,682	7,533,053	10,900,900	6,990,255	19,891,228
All Other Europe	2,038,274	1,779,379	1,183,099	289,675	187,220	149,008	338,399	537,530	1,111,733	2,049,471	2,529,292	2,315,372
Canada	2,780,950	2,350,537	1,442,128	680,868	699,615	197,290	483,045	518,641	1,254,268	2,951,367	1,472,016	2,948,717
All Other North and Central America	261,997	311,625	316,326	68,896	47,177	67,574	142,267	251,185	452,898	333,942	170,836	332,793
South America	751,245	608,346	720,826	80,060	43,988	86,087	197,945	351,886	352,199	612,960	743,617	478,071
Japan	496,368	570,296	554,805	193,614	801,893	1,025,236	2,188,601	1,635,837	2,604,994	8,976,817	18,501,722	18,063,065
All Other Asia	257,049	378,425	292,457	135,613	47,426	55,714	308,301	426,496	323,156	678,676	1,180,769	1,180,769
Oceania	186,609	195,240	123,678	28,332	24,967	35,175	155,486	179,819	230,699	485,955	606,130	538,140
Africa	125,329	100,373	86,379	27,949	18,104	30,971	80,654	149,158	230,728	293,347	386,880	229,388
Grand Total	15,957,440	18,861,560	18,043,220	17,571,067	8,190,289	4,407,410	12,078,037	17,369,095	24,912,911	38,537,642	64,628,143	79,818,943

	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951*
France	26,076,868	180				2,370,233	26,393,443	11,620,848	6,449,691	9,061,505	13,054,119	6,812,871
Germany							544,661	746,808	35,673	2,423,223	1,671,466	447,623
Italy	608,847					258	35,184	456,147	13,010,953	15,570,267	6,061,747	6,061,747
Poland and Danzig							4,159,570	4,807,640	2,818,237	409,725		682
Russia	12,332,013	3,679,052	35,577,260	119,586,711	122,226,745	54,165,818	33,437,984	15,442,605	1,804,652	110,000		588,907
Sweden	413,495	7,316				384,781	4,688,897	7,730,980	2,147,573	2,485,968		1,814,040
United Kingdom	109,008,169	104,745,018	71,784,784	68,925,396	19,374,755	4,809,862	3,938,382	6,536,347	7,923,881	6,785,472	6,536,041	6,965,231
All Other Europe	1,663,162	58,593	36,378	140,060	64,397	482,400	11,740,467	17,739,793	13,120,488	15,056,817	7,840,000	2,977,330
Canada	12,673,371	43,433,161	29,805,367		3,994,192	4,706,734	6,052,670	8,218,856	6,743,314	8,013,379	8,875,788	7,538,096
All Other North and Central America												
South America	377,545	648,701	342,490	831,984	2,041,558	2,902,907	4,070,539	3,893,703	2,342,739	2,336,305	2,457,545	350,020
Japan	1,027,104	1,690,849	658,992	4,424,132	3,681,161	4,313,313	8,951,945	13,784,469	8,967,120	5,367,279	3,235,066	3,322,974
All Other Asia	14,798,533	162,174						137,010	72,207	43,956	201,763	132,617
Oceania	1,432,092	39,383,522	4,138,166	6,722,170	7,180,524	2,210,113	3,357,220	8,186,094	4,829,586	5,355,284	3,128,913	651,496
Africa	4,055,689	5,907,428	12,634,105	17,704,485	1,472,925	536,400	385,842	3,395,267	1,121,707	1,102,687	772,790	603,521
All Other Machine Tools	1,077,542	2,262,611	2,556,816	3,016,273	3,560,855	1,704,048	2,198,031	2,631,610	1,939,677	1,138,020	621,205	340,105
Grand Total	185,717,037	166,533,438	157,534,358	237,121,792	163,599,140	78,486,867	110,035,671	105,328,177	62,806,037	72,620,513	66,493,115	**36,961,024

* Seven months.

**Includes \$867,584 destination not available

Source: Dept. of Commerce and National Machine Tool Builders Assn.

MARKET AND PRODUCT DATA, METAL PLANT STATISTICS



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MARKET AND PRODUCT DATA

Protective coatings for maintenance . . .
Color preferences . . . Causes of corrosion.

MAIN CAUSES OF DAMAGE BY CORROSION

Responses From 340 Plants, Indicating Moderate or Severe Corrosive Conditions

Damage Caused By	All 340 Plants Reporting		94 Plants Reporting Severe Problem		246 Plants Reporting Moderate Problem	
	Number	Pct of Total	Number	Pct of Total	Number	Pct of Total
Water Immersion	58	17.0	18	17.0	42	17.0
Condensation	144	42.3	40	42.5	104	42.2
Brine	12	3.5	10	10.6	2	0.8
Acid Fumes	178	52.4	78	80.8	102	41.4
Acid Solutions	110	32.3	50	53.2	60	24.4
Alkali Solutions	62	18.2	25	26.6	37	15.0
Heat	78	22.9	25	26.6	53	21.5
Weather	222	65.3	40	42.5	182	73.9
Other	11	3.2	2	2.1	9	3.6

PROTECTIVE COATINGS FOR MAINTENANCE OF EQUIPMENT

Breakdown of 1950 Consumption of 172,840 Gallons As Reported by Type by 226 Metalworking Plants

Govt. Ind. Code	Description of Industry Groups	No. Plants Giving Gal. Figures	Number Workers In These Plants	Protective Coatings Used in 1950 (Gal.)				
				Oil-Base No. Modifying Resins	Oil-Base Resin-Modified	Synthetic Resin Lacquer	Tar-Base	Asphalt Base
19	Ordinance Manufacturers	5	4,600	1,450	745	50	95	5,215
25	Metal Furniture	6	2,371	350	120	50		620
331	Steel Mills	13	32,844	3,928	29,779	120	2,250	8,780
332	Iron and Steel Foundries	12	16,027	325	9,105			2,440
335	Nonferrous Mills	8	5,083	100	2,260	561	9,992	100
339	Other Producers (Metal)	8	2,710		165		5,000	535
34	Fabricated Metal Products	67	29,903	8,629	1,202	1,567	1,549	4,555
35	Machinery Manufacturers	56	48,241	2,292	945	1,130	1,265	21,900
36	Electrical Equipment	19	14,928	1,245	210	795	50	781
37	Transportation Equipment	17	26,459	535	145	100	975	775
38-39	Instruments and Miscellaneous	15	9,373	100	130	250	125	1,425
	Totals	226	192,539	15,954	44,826	4,823	21,301	47,228
19	Ordinance Manufacturers	5	4,600	50		495	110	8,219
25	Metal Furniture	6	2,371		117	765	10	2,032
331	Steel Mills	13	32,844	850	565	2,144	450	48,988
332	Iron and Steel Foundries	12	16,027		50	1,780	40	13,740
335	Nonferrous Mills	8	5,083		175	1,433	15,200	29,841
339	Other Producers (Metal)	8	2,710		332	555		6,587
34	Fabricated Metal Products	67	29,903	900	830	2,728	1,424	20,494
35	Machinery Manufacturers	56	48,241	475	919	2,470	416	31,812
36	Electrical Equipment	19	14,928		230	571	30	3,912
37	Transportation Equipment	17	26,459	20	430	1,340	6	4,325
38-39	Instruments and Miscellaneous	15	9,373	60	685	255		3,030
	Totals	226	192,539	2,355	4,333	14,538	17,686	172,840

* In Group 335 "Other Coatings" the 15,200 gal figure includes 15,000 gal reported as "rust preventive paint."

PREFERENCES IN COLORS

For Industrial Protective Coatings*

Colors	No. of Votes
Gray	92
Black	78
Green	71
Aluminum	53
Red	49
White	43
Yellow	17
Brown	13
Light Gray	12
Light Shades	8
Blue	8
Orange	6
Prefer Variety of Colors?	
Yes	137
No	192
Didn't Answer	11
Sacrifice Colors For Better Protection?	
Yes	282
No	40
Didn't Answer	18

* Based on responses from 340 plants

THE IRON AGE PRODUCT SURVEYS

The product survey data published on this and the following two pages were compiled by the market research division of THE IRON AGE. They were selected for publication here from among a number of such surveys on the basis of general reader interest. Additional data on these product surveys may be obtained from the market research division.

Sources of data for the surveys were representative metalworking companies. Where quantities reported in a sample were expanded to yield an industry estimate, expansion factors were used for the various industry groups. The factors were arrived at by dividing the number of production workers in the industry by the number of production workers in reporting plants. In cases where the sample was not considered large enough, no effort has been made to project an industry total on the basis of the sample. Data on metal cleaning, finishing and testing, etc., in this issue is from the revised IRON AGE Basic Marketing Data.

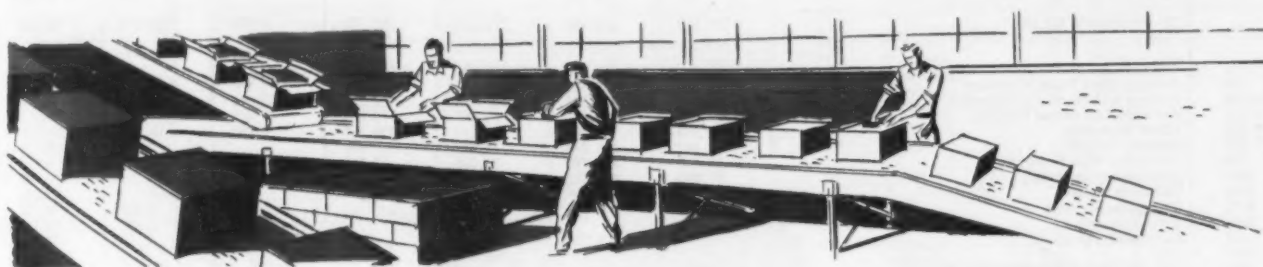
Use of gearmotors and speed reducers.
Analysis of the extent of usage of paper
packaging by the metalworking industry.

MARKET AND PRODUCT DATA

GEARMOTORS AND SPEED REDUCERS IN METALWORKING

In-plant Use in 458 Manufacturing Plants in 1951. Analysis of Replies by 2-digit product groups

Govt. Ind. Code	Description of Industry Groups	Use Gearmotors and Fixed-Ratio Speed Reducers					Use Variable Speed Reducers		
		No. of Replies	Use Either Type	Pct of Plants Using	Use Gear-Motors	Use Fixed Speed Reducers	No. of Replies	No. of Plants Using	Pct of Plants Using
19	Ordinance Equipment.....	9	8	89	8	7	8	7	89
25	Metal Furniture.....	12	12	100	11	12	11	10	91
33	Primary Metals.....	115	114	99	106	114	110	88	80
34	Fabricated Metal Products.....	128	116	90	95	112	119	94	79
35	Machinery Manufacturers Omitted.....								
36	Electrical Equipment.....	80	78	93	69	69	74	84	86
37	Transportation Equipment.....	70	67	96	51	63	67	61	91
38	Instruments, Photo Equipment.....	16	15	94	13	13	16	13	81
39	Miscellaneous Metal Products.....	28	27	96	24	24	32	29	91
	Totals.....	458	435	95	377	414	437	368	84



PAPER PACKAGING IN THE METALWORKING INDUSTRY

1950 Dollar Purchases As Reported by 204 Plants. Analysis of Replies by 3-Digit Product Groups

Govt. Ind. Code	Description of Industry Groups	Corrugated Boxes		Fibre Boxes		Kraft Bags		Kraft Paper		Totals	
		No. of Replies	Value of Purchases	No. of Replies	Value of Purchases	No. of Replies	Value of Purchases	No. of Replies	Value of Purchases	No. of Replies	Value of Purchases
251	Metal Household Furniture.....	7	\$847,800	2	\$45,000	5	\$153,000	8	\$54,700	8	\$1,100,500
252	Metal Office Furniture.....	5	\$453,200	1	\$15,000	3	\$22,700	4	\$25,700	5	\$528,800
254	Partitions, Shelving, Lockers.....	2	\$50,000					1	\$2,000	2	\$52,000
331	Steel Mills.....	3	\$35,500					2	\$103,900	3	\$139,400
339	Wire Drawing.....	2	\$5,400	1	\$25,000	2	\$3,850	2	\$24,500	3	\$33,750
341	Tin Cans.....	1	\$150,000							1	\$150,000
342	Hand Tools, Hardware.....	15	\$334,900	2	\$7,250	5	\$31,600	13	\$84,550	17	\$458,300
343	Heating Apparatus.....	7	\$335,300	1	\$350	2	\$15,000	8	\$20,500	7	\$371,150
344	Fabricated Metal Products.....	5	\$14,800					4	\$825	7	\$15,425
346	Stamplings.....	8	\$622,000	1	\$25,000	2	\$55,000	3	\$21,500	8	\$723,500
347	Lighting Fixtures.....	3	\$385,000					1	\$2,000	3	\$397,000
348	Wirework, Springs.....	2	\$90,000	1	\$30,000			2	\$4,000	3	\$124,000
349	Bolts, Nuts, Screw Products.....	9	\$381,580	3	\$418,787			2	\$10,200	10	\$790,547
351	Internal Combustion Engines.....	2	\$225,000	1	\$10,000			1	\$500	2	\$235,500
352	Agricultural Machinery.....	3	\$25,000	1	\$900	1	\$90	2	\$550	3	\$25,500
354	Metalworking Machinery.....	4	\$12,000					3	\$1,500	4	\$13,500
355	Food-Products Machinery.....	1	\$3,000			1	\$500	1	\$5,000	1	\$9,500
356	Pumps, Blowers.....	6	\$278,250					4	\$7,500	6	\$285,750
357	Office and Store Machines.....	12	\$322,000	2	\$5,000	3	\$5,575	8	\$9,750	12	\$342,325
358	Household Machines.....	21	\$1,059,600	6	\$258,700	5	\$22,500	14	\$29,340	22	\$1,373,140
359	Machinery Parts.....	2	\$35,000	2	\$20,000			2	\$35,000	2	\$90,000
361	Electrical Industrial Equipment.....	12	\$484,100	2	\$103,500	1	\$1,000	9	\$8,100	12	\$593,700
362	Electrical Appliances.....	1	\$50,000							1	\$50,000
363	Insulated Wire and Cable.....	1	\$250,000					1	\$300,000	1	\$550,000
364	Electrical Equipment for Vehicles.....	4	\$31,000					2	\$11,000	4	\$42,000
365	Electric Bells.....	3	\$800,000							3	\$800,000
368	Communication Equipment.....	7	\$381,000	3	\$12,850			5	\$17,250	7	\$392,900
369	Miscellaneous Electrical Products.....	3	\$65,500	1	\$9,000	1	\$200	2	\$1,700	3	\$72,400
372	Aircraft and Parts.....	2	\$14,000	1	\$500	2	\$1,000	2	\$1,500	2	\$17,000
382	Engineering Instruments.....	4	\$37,770					3	\$5,400	4	\$43,170
383	Mechanical Control Instruments.....	5	\$290,000					2	\$2,500	5	\$292,500
384	Optical Instruments.....	1	\$3,000							1	\$3,000
386	Surgical and Dental Instruments.....	9	\$105,000	3	\$7,500	4	\$8,300	9	\$8,300	9	\$127,100
388	Photographic Equipment.....	3	\$55,000			1	\$25	3	\$2,500	3	\$57,525
393	Medical Instruments.....	1	\$8,000			1	\$300	1	\$700	1	\$9,000
394	Toys and Children's Vehicles.....	11	\$841,000			1	\$8,000	6	\$50,250	11	\$899,250
395	Mechanical Pencils.....	2	\$85,000	1	\$2,000	1	\$530	1	\$5,000	2	\$72,500
396	Costume Jewelry.....	1	\$240							1	\$240
398	Brushes, Gaskets.....	1	\$75,000	1	\$5,000	1	\$4,000	1	\$5,000	1	\$89,000
399	Miscellaneous Metal Goods.....	4	\$147,500	1	\$750			4	\$8,300	4	\$156,550
	Total \$ Reports.....	195	\$9,318,240	37	\$937,857	42	\$331,100	133	\$471,015	204	\$11,518,222

MARKET AND PRODUCT DATA

Enamels, lacquers, varnish and other
paints for metal product application.

USE OF PAINT FOR FINISHING METAL PRODUCTS

Estimate of Consumption in 1950 by the Metalworking Industry for Application on Shipped Products Only*

Govt. Ind. Code	Description of Industry Groups	GALLONS OF ENAMELS, LACQUERS, VARNISHES, ETC. USED						
		Air-Drying Enamels	Baking Enamels	Lacquer	Varnish	Japan	Other Paint	Industry Totals
19	ORDNANCE			132,300	7,000			139,300
25	METAL FURNITURE	55,130	4,059,099	622,093	218,843	46,903	27,225	5,028,293
331	Steelworks and Rolling Mills	58,485	80,514	71,483	705,582	150	558,173	1,474,367
332	Iron and Steel Foundries	11,071	99	95,452	56	3,359	173,745	283,792
335	Nonferrous Rolling Mills	42,790	129,200	2,017			3,627	177,624
336	Nonferrous Foundries		9,947	4,314			12,240	26,561
3391	Iron and Steel Forgings	1,160	88,145	8,555	2,134		590	100,574
3393	Welded and Heavy-Riveted Pipe	19,380	30,005	88,230			47,260	194,875
3396	Cold Rolling Mills	256	12,480				16	12,732
33-PRIMARY METALS		133,132	350,390	270,031	707,782	3,509	795,641	2,260,465
341	Tin Cans		2,718,170	1,166,750	2,283,645			6,168,565
342	Cutlery, Hand Tools, Hardware	128,928	588,552	759,212	127,160	18,580	14,640	1,635,060
343	Heating and Plumbing Equipment	535,533	2,207,304	357,724		432,982	430,461	3,964,004
344	Fabricated Structural Products	260,640	2,860,191	53,855	6,300	1,485	4,161,708	7,344,279
346	Metal Stampings	299,225	1,103,280	499,840	1,396,905	7,285	19,875	3,326,500
347	Lighting Fixtures	9,152	546,078	73,840	260			629,330
348	Fabricated Wire Products	20,219	326,760	74,805	61,502	223,321	145,355	651,962
3491	Metal Shipping Drums	17,955	863,681	178,182	49,439	70,252		1,178,509
3492	Safes and Vaults		63,000	10,500				73,500
3493	Springs for Vehicles	89,320					4,438	93,758
3494	Bolts, Nuts, Rivets			168			1,008	1,176
3496	Collapsible Tubes		133,000	43,750				176,750
3497	Foil			750,000				750,000
3499	Miscellaneous Fabricated Metal Products	250		500				750
34-FABRICATED METAL PRODUCTS		1,361,222	11,410,026	3,969,326	3,924,219	751,885	4,777,485	26,194,163
351	Engines and Turbines	60,280	36,608	14,080	44		7,700	118,712
352	Agricultural Machinery and Tractors	3,702,425	1,334,028	186,295	55,147	6,222	88,956	5,373,073
353	Construction and Mining Equipment	651,710	21,029	34,536	16,363	15,936	90,605	830,179
354	Metalworking Machinery	89,859	24,777	114,460		137	6,149	235,362
355	Special Industry Machinery	184,830	70,596	93,876	18,352	3,293	51,652	422,599
356	General Industrial Machinery	485,663	220,251	99,880	6,692	5,720	200,253	1,018,199
357	Office and Store Machines	61,710	331,417	9,280	1,540	6,248	47,388	497,883
358	Household Machines	342,325	2,848,917	284,608	17,264	21,505	130,460	3,645,070
359	Miscellaneous Machinery Parts	69,760	77,650	122,150	4,475	2,600	69,610	346,245
35-MACHINERY		5,648,562	4,965,273	959,865	119,877	61,661	892,773	12,447,011
361	Electric Wiring and Industrial Equipment	125,940	1,243,152	356,114	1,174,140	104,160	54,276	3,067,782
362	Electric Appliances, Not Elsewhere Classified	54,394	664,423	21,722	70,560	268,273	9,154	1,088,526
363	Insulated Wire and Cable	450,000	1,734,000	769,014	672,000			3,625,014
364	Electric Equipment for Transportation Vehicles	3,576	380,076	192,000				575,652
365	Electric Lamp Bulbs			10,000			100,000	110,000
366	Communication Equipment	80,143	126,175	480,515	2,390	2,450	77,000	788,683
369	Miscellaneous Electrical Products	20,397	15,151	48,691	3,900		6,084	94,223
36-ELECTRICAL EQUIPMENT		734,450	4,162,977	1,888,056	1,922,980	374,883	246,514	9,329,860
3711-3	Motor Vehicles and Bodies	554,663	18,324,319	895,518	3,445		120,710	19,898,655
3714	Auto Parts and Accessories	378,112	1,185,514	440,853	17,583	417,530	854,259	3,293,951
3715-6	Trailers	123,308	178,378	94,726	89,075	37,000		522,487
372	Aircraft and Parts	181,138	8,640	369,360	27,557		641,088	1,227,763
373	Shipbuilding	3,850		35,783	2,585	55	908,600	950,873
374	Railroad Equipment	26,000	50,000				350,000	426,000
375	Motorcycles and Bicycles		314,880	44,400		1,200		360,480
379	Miscellaneous Transportation Equipment	329,598		9,972	140,382		138,114	618,066
37-TRANSPORTATION EQUIPMENT		1,596,669	20,061,731	1,890,612	280,627	455,785	3,012,771	27,298,195
381-2	Mechanical Control Instruments	44,946	45,262	42,710	492	150	11,445	145,005
383-7	Other Instruments	7,769	94,475	24,433	1,698	1,152	6,000	135,527
38-INSTRUMENTS		52,715	139,737	67,143	2,190	1,302	17,445	280,532
3941	Toys and Games (Metal)	21,338	398,640	241,395	14,348	33,330	8,580	717,831
3943	Children's Vehicles	7,807	397,548	45,000	3,375			453,730
3993	Signs and Displays	18,338	578,800	183,400	146,169		70,000	992,727
39 Bal.	Balance of 39 Group	29,706	390,373	497,716	6,256	700		921,751
39-MISCELLANEOUS MANUFACTURING (METAL)		75,189	1,763,361	967,511	170,168	34,030	78,580	3,008,839
	Quantity Used by Metalworking Industry for Product Application	9,657,069	46,912,594	10,785,937	7,353,688	1,728,958	9,648,434	88,068,878

* Based on expansion of a sample survey covering 2020 metalworking plants.

Metal washing, pickling, electroplating, sand blasting, painting, coating, physical testing and polishing departments.

MARKET AND PRODUCT DATA

METAL CLEANING, FINISHING AND TESTING

Departments Operated by U. S. Metalworking Plants Employing 20 or More Plant Workers

WASHING OR DEGREASING

Alabama	24	Nebraska	23
Arizona	1	Nevada	2
Arkansas	6	New Hampshire	22
California	368	New Jersey	272
Colorado	19	New Mexico	625
Connecticut	255	New York	24
Delaware	6	North Carolina	24
District of Columbia	3	North Dakota	886
Florida	14	Ohio	24
Georgia	39	Oklahoma	20
Idaho	3	Oregon	437
Illinois	710	Pennsylvania	100
Indiana	242	Rhode Island	5
Iowa	78	South Carolina	3
Kansas	30	South Dakota	1
Kentucky	35	Tennessee	36
Louisiana	14	Texas	70
Maine	5	Utah	3
Maryland	58	Vermont	10
Massachusetts	295	Virginia	20
Michigan	530	Washington	21
Minnesota	95	West Virginia	22
Mississippi	6	Wisconsin	215
Missouri	124	Wyoming	595
Montana	1	Total	595

SAND BLASTING

Alabama	31	Nebraska	20
Arizona	4	Nevada	19
Arkansas	3	New Hampshire	148
California	212	New Jersey	1
Colorado	17	New Mexico	294
Connecticut	129	New York	19
Delaware	1	North Carolina	476
District of Columbia	14	North Dakota	20
Florida	24	Ohio	26
Georgia	2	Oklahoma	414
Idaho	354	Oregon	30
Illinois	169	Pennsylvania	6
Indiana	60	Rhode Island	1
Iowa	21	South Carolina	40
Kansas	21	South Dakota	76
Kentucky	18	Tennessee	11
Louisiana	12	Texas	10
Maine	35	Utah	21
Maryland	199	Vermont	36
Massachusetts	338	Virginia	19
Michigan	49	Washington	148
Minnesota	2	West Virginia	3,652
Mississippi	91	Wisconsin	
Missouri	2	Wyoming	
Montana	2	Total	

GALVANIZING OR TINNING

Alabama	11	Nebraska	8
Arizona	1	Nevada	4
Arkansas	3	New Hampshire	42
California	63	New Jersey	79
Colorado	3	New Mexico	5
Connecticut	36	New York	115
Delaware	1	North Carolina	4
District of Columbia	8	North Dakota	2
Florida	4	Ohio	108
Georgia	8	Oklahoma	8
Idaho	85	Oregon	17
Illinois	42	Pennsylvania	7
Indiana	17	Rhode Island	4
Iowa	7	South Carolina	14
Kansas	7	South Dakota	1
Kentucky	4	Tennessee	3
Louisiana	21	Texas	6
Maine	64	Utah	7
Maryland	60	Vermont	41
Massachusetts	18	Virginia	938
Michigan	31	Washington	
Minnesota	3	West Virginia	
Mississippi	3	Wisconsin	
Missouri	3	Wyoming	
Montana	3	Total	

PICKLING

Alabama	14	Nebraska	7
Arizona	1	Nevada	7
Arkansas	2	New Hampshire	136
California	160	New Jersey	280
Colorado	7	New Mexico	9
Connecticut	151	New York	286
Delaware	3	North Carolina	8
District of Columbia	4	North Dakota	7
Florida	13	Ohio	290
Georgia	1	Oklahoma	82
Idaho	249	Oregon	1
Illinois	109	Pennsylvania	26
Indiana	29	Rhode Island	23
Iowa	8	South Carolina	2
Kansas	18	South Dakota	3
Kentucky	3	Tennessee	174
Louisiana	3	Texas	204
Maine	26	Utah	25
Maryland	174	Vermont	1
Massachusetts	204	Virginia	56
Michigan	25	Washington	2,555
Minnesota	1	West Virginia	
Mississippi	56	Wisconsin	
Missouri	1	Wyoming	
Montana	1	Total	



PHYSICAL TESTING

Alabama	16	Nebraska	8
Arizona	1	Nevada	10
Arkansas	136	New Hampshire	135
California	9	New Jersey	245
Colorado	89	New Mexico	8
Connecticut	8	New York	318
Delaware	2	North Carolina	9
District of Columbia	4	North Dakota	4
Florida	11	Ohio	250
Georgia	278	Oklahoma	15
Idaho	112	Oregon	1
Illinois	27	Pennsylvania	2
Indiana	14	Rhode Island	19
Iowa	17	South Carolina	28
Kansas	4	South Dakota	5
Kentucky	4	Tennessee	4
Louisiana	25	Texas	8
Maine	119	Utah	18
Maryland	199	Vermont	94
Massachusetts	30	Virginia	2,357
Michigan	30	Washington	
Minnesota	2	West Virginia	
Mississippi	54	Wisconsin	
Missouri	3	Wyoming	
Montana	3	Total	

ELECTROPLATING

Alabama	6	Nebraska	8
Arizona	4	Nevada	15
Arkansas	154	New Hampshire	165
California	9	New Jersey	349
Colorado	190	New Mexico	7
Connecticut	2	New York	303
Delaware	4	North Carolina	8
District of Columbia	4	North Dakota	2
Florida	21	Ohio	212
Georgia	2	Oklahoma	71
Idaho	296	Oregon	1
Illinois	114	Pennsylvania	11
Indiana	32	Rhode Island	17
Iowa	8	South Carolina	3
Kansas	14	South Dakota	5
Kentucky	1	Tennessee	14
Louisiana	3	Texas	222
Maine	23	Utah	36
Maryland	174	Vermont	1
Massachusetts	222	Virginia	56
Michigan	36	Washington	2,675
Minnesota	1	West Virginia	
Mississippi	56	Wisconsin	
Missouri	1	Wyoming	
Montana	1	Total	

PAINTING AND LACQUERING

Alabama	49	Nebraska	41
Arizona	4	Nevada	31
Arkansas	13	New Hampshire	391
California	558	New Jersey	1
Colorado	37	New Mexico	860
Connecticut	268	New York	53
Delaware	10	North Carolina	3
District of Columbia	8	North Dakota	923
Florida	35	Ohio	61
Georgia	71	Oklahoma	46
Idaho	4	Oregon	5
Illinois	975	Pennsylvania	688
Indiana	348	Rhode Island	101
Iowa	131	South Carolina	7
Kansas	62	South Dakota	5
Kentucky	61	Tennessee	69
Louisiana	21	Texas	139
Maine	20	Utah	13
Maryland	90	Vermont	50
Massachusetts	390	Virginia	54
Michigan	633	Washington	38
Minnesota	156	West Virginia	343
Mississippi	13	Wisconsin	1
Missouri	207	Wyoming	8,066
Montana	3	Total	

POLISHING OR BUFFING

Alabama	18	Nebraska	19
Arizona	1	Nevada	29
Arkansas	7	New Hampshire	293
California	299	New Jersey	661
Colorado	22	New Mexico	30
Connecticut	280	New York	3
Delaware	5	North Carolina	582
District of Columbia	4	North Dakota	10
Florida	15	Ohio	22
Georgia	39	Oklahoma	404
Idaho	1	Oregon	107
Illinois	555	Pennsylvania	3
Indiana	192	Rhode Island	33
Iowa	64	South Carolina	58
Kansas	24	South Dakota	14
Kentucky	42	Tennessee	22
Louisiana	7	Texas	27
Maine	12	Utah	19
Maryland	43	Vermont	186
Massachusetts	330	Virginia	1
Michigan	394	Washington	5,094
Minnesota	77	West Virginia	
Mississippi	3	Wisconsin	
Missouri	120	Wyoming	
Montana	3	Total	

All Data on This Page Were Obtained from THE IRON AGE Basic Marketing Data.

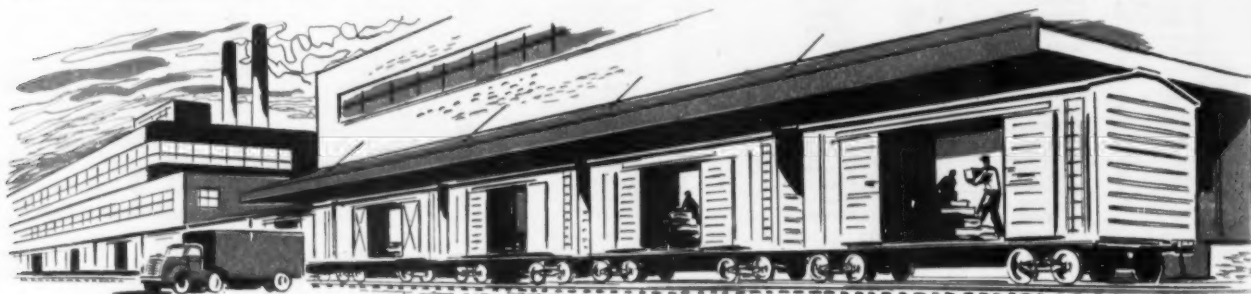
MARKET AND PRODUCT DATA

General industry statistics of primary
ferrous and nonferrous metal producers
and of fabricated metal products plants.

METALWORKING PLANT STATISTICS

From U. S. Bureau of The Census 1950 Annual Survey of Manufactures, Listed by Industry Groups

Govt. Ind. Code	Description of Industry Groups	1950						1949	1947	Standard Error of 1950 & 1949 Estimates (pct) for Columns*		
		All Employees		Production Workers			Value Added by Manufacture	All Employees (average for the yr)	All Employees (average for the yr)			
		Number (average for the yr)	Salaries & Wages, Total	Number (average for the yr)	Man-hours, Total	Wages, Total						
		A	B	C	D	E	F	G	H	A	F	Q
	33—PRIMARY METAL INDUSTRIES	1,127,674	\$4,157,451	977,450	2,008,705	\$3,400,055	\$7,950,990	1,016,269	1,157,124	1	1	1
331	Blast Furnaces & Steel Mills	554,509	2,057,296	484,500	981,367	1,713,152	4,101,967	504,293	547,364	1	1	1
3311	Blast Furnaces	40,154	139,637	35,357	71,047	115,034	554,269	36,838	38,937	1	1	1
3312	Steel Works & Rolling Mills	504,051	1,880,092	440,516	892,649	1,589,419	3,431,813	458,753	500,799	1	1	1
3313	Electrometallurgical Products	10,304	37,567	8,627	17,671	28,699	115,895	8,702	9,628	1	1	1
332	Iron & Steel Foundries	228,444	806,777	203,003	426,333	678,418	1,170,743	211,582	267,306	3	3	3
3321	Gray-Iron Foundries	150,121	521,655	135,811	286,801	450,455	763,701	138,691	173,776	3	4	3
3322	Malleable-Iron Foundries	26,229	95,415	22,973	47,220	76,087	126,997	24,440	29,862	3	4	3
3323	Steel Foundries	52,094	189,707	44,219	92,312	149,866	280,045	48,451	63,668	4	4	4
333	Primary Nonferrous Metals	42,556	148,260	36,296	75,536	121,835	405,883	40,772	42,804	1	1	1
3331	Primary Copper	13,924	48,008	11,999	25,810	39,850	137,889	13,513	14,629	1	1	1
3332	Primary Lead	4,738	16,007	3,889	8,031	12,359	40,314	5,169	4,663	1	1	1
3333	Primary Zinc	11,263	39,975	9,678	20,131	34,163	99,015	11,154	12,424	1	1	1
3334	Primary Aluminum	10,663	37,151	8,869	18,215	29,707	105,264	8,928	8,919	1	1	1
3339	Primary Nonferrous Metals, n.e.c.	1,968	7,119	1,661	3,349	5,756	23,401		2,189	1	1	
3341	Secondary Nonferrous Metals	15,981	59,138	12,337	26,123	38,964	137,680	14,024	18,402	3	4	2
335	Nonferrous Metal Rolling & Drawing	87,207	323,397	73,146	153,734	255,476	736,922	72,077	88,824	1	1	1
3351	Copper Rolling & Drawing	50,653	185,961	42,888	90,580	156,593	455,090	43,737	53,867	1	1	1
3352	Aluminum Rolling & Drawing	27,303	90,528	22,693	46,781	71,719	208,045	22,116	27,365	1	1	1
3359	Nonferrous Metal Rolling, n.e.c.	9,241	36,908	7,565	16,373	27,164	73,787	6,224	7,592	4	3	1
3361	Nonferrous Foundries	85,182	231,180	55,615	111,959	183,129	371,634	56,504	65,342	2	2	4
339	Misc. Primary Metal Ind.	133,795	531,403	112,553	233,653	409,081	1,026,181	117,037	127,082	2	2	2
3391	Iron & Steel Forgings	39,481	166,303	34,201	69,487	133,044	262,232	36,487	36,724	2	2	3
3392	Wire Drawing	53,753	200,330	44,394	93,424	153,245	420,761	44,404	55,079	3	5	3
3393	Welded & Heavy Riveted Pipe	19,274	79,213	16,633	33,822	60,418	168,433	18,323	13,144	3	4	3
3399	Primary Metal Industries, n.e.c.	21,287	85,557	17,325	36,920	62,374	174,755	17,823	22,135	3	3	4
	34—FABRICATED METAL PRODUCTS	980,723	\$3,404,061	806,801	1,658,280	\$2,523,636	\$6,210,759	672,229	971,461	1	1	2
3411	Tin Cans and Other Tinware	51,611	171,962	44,855	93,814	141,900	342,210	46,744	46,890	1	1	
342	Cutlery, Hand Tools & Hardware	153,650	510,623	128,108	258,972	382,820	919,349	138,868	154,168	2	2	3
3421	Cutlery	21,305	61,442	18,341	35,424	45,980	126,852	18,616	20,248	3	3	8
3422	Edge Tools	8,328	26,828	7,132	14,021	20,186	46,435		8,828	9	9	
3423	Hand Tools, n.e.c.	29,445	100,616	23,275	46,655	69,235	166,063	27,151	35,868	4	3	7
3424	Files	3,706	11,857	3,189	6,225	9,717	21,811		4,446	15	10	
3425	Hand Saws & Saw Blades	7,366	27,139	5,661	12,048	20,064	50,310		8,441	5	4	
3429	Hardware, n.e.c.	83,500	283,741	70,310	144,601	217,638	507,678	75,885	76,537	4	4	
343	Heating & Plumbing Equip.	135,425	458,306	109,651	222,011	338,998	879,847	113,325	150,882	3	2	3
3431	Metal Plumbing Fixtures & Fittings	40,846	142,535	34,775	71,593	112,491	257,110	30,225	34,089	4	3	8
3439	Heating & Cooking Apparatus, n.e.c.	89,700	296,180	71,220	143,323	215,319	589,378	77,377	110,475	4	4	
344	Structural Metal Products	229,548	842,923	179,297	370,151	581,777	1,556,799	212,890	212,379	2	3	3
3441	Structural & Ornamental Products	90,857	343,946	69,846	142,403	227,932	710,763	84,283	79,678	3	4	4
3442	Metal Doors, Sash, & Trim	25,036	95,747	19,829	42,346	65,850	181,937	19,233	21,079	3	2	6
3443	Boiler Shop Products	63,407	226,567	49,086	101,591	159,953	363,368	61,112	68,979	3	3	3
3444	Sheet Metal Work	50,248	176,663	40,536	83,609	128,042	300,731		42,643	6	5	
346	Metal Stamping & Coating	184,730	639,186	155,915	322,567	490,104	1,076,860	162,010	182,953	3	2	3
3461	Vitreous Enamelled Products	8,783	23,727	7,006	14,658	18,825	34,848	8,033	12,240	4	4	7
3463	Metal Stampings	139,874	504,977	116,334	242,267	381,981	841,150	117,454	132,011	3	3	3
3468	Plating & Polishing	26,812	83,009	23,879	49,755	68,619	150,227		28,223	15	8	
3471	Lighting Fixtures	46,281	157,398	37,276	77,249	109,234	277,362	43,303	47,596	5	6	5



General industry statistics of metal fabricating plants and of general and electrical machinery manufacturing plants.

MARKET AND PRODUCT DATA

METALWORKING PLANT STATISTICS (CONTINUED)

Govt. Ind. Code	Description of Industry Groups	1950					1949	1947	Standard Error of 1950 & 1949 Estimates (pct) for Columns*			
		All Employees		Production Workers			Value Added by Manufacture	All Employees (average for the yr)	All Employees (average for the yr)	A	F	G
		Number (average for the yr)	Salaries & Wages, Total	Number (average for the yr)	Man-hours, Total	Wages, Total						
							A	B	C	D	E	F	G	H
348	Fabricated Wire Products.....	68,297	\$226,551	59,056	118,504	\$177,512	\$391,987	59,163	60,647	3	3	4
3481	Nails & Spikes.....	3,249	10,352	2,761	5,603	8,036	19,691	3,805	3,805	15	10	10
3489	Wirework, n.e.c.....	95,048	216,199	56,295	112,901	169,476	372,096	55,281	56,842	4	4	4
349	Misc. Fabricated Metal Products.....	111,181	397,112	92,643	194,992	301,293	766,345	95,926	115,916	3	3	4
3491	Metal Barrels, Drums, & Pails.....	9,329	30,713	8,305	15,965	24,706	72,831	8,574	10,915	1	5	2
3492	Safes & Vaults.....	4,166	13,800	2,648	5,225	7,848	21,154	3,048	3,754	4	2	4
3493	Steel Springs.....	7,179	27,555	5,813	12,363	20,455	46,362	7,158	7,760	2	2	4
3494	Bolts, Nuts, Washers, & Rivets.....	46,317	176,504	37,800	82,841	131,314	357,453	42,532	49,235	4	4	4
3495	Screw-Machine Products.....	30,096	103,496	25,469	53,776	82,128	184,373	22,761	26,492	5	5	15
3497	Metal Foil.....	3,934	13,526	3,227	6,528	10,358	34,091	4,261	4,261	8	6	6
	35—MACHINERY.....	1,363,866	\$5,063,008	1,064,266	2,182,848	\$3,609,085	\$8,764,652	1,295,091	1,545,323	1	1	1
351	Engines & Turbines.....	74,788	276,017	56,626	107,608	191,339	472,307	73,357	93,084	2	2	2
3511	Steam Engines & Turbines.....	20,038	80,223	14,094	28,849	53,168	168,934	21,640	21,640	1	1	1
3519	Internal-Combustion Engines.....	54,750	195,794	42,532	78,759	138,171	303,373	49,625	71,424	2	3	2
352	Tractors & Farm Machinery.....	166,258	564,419	131,618	282,778	416,204	1,070,823	171,257	171,435	2	3	2
3521	Tractors.....	79,471	275,791	63,464	120,800	207,191	540,181	80,243	77,317	1	1	1
3522	Farm Machinery.....	86,787	288,628	68,154	131,978	209,013	530,642	91,014	94,118	4	4	4
353	Construction & Mining Machinery.....	96,533	363,014	72,565	182,462	246,140	645,007	93,748	113,871	3	4	3
3531	Construction & Mining Machinery.....	69,858	261,277	53,055	111,261	179,117	440,180	68,168	84,694	4	5	4
3532	Oil-Field Machinery & Tools.....	26,677	101,737	19,510	41,201	67,023	204,827	25,580	29,177	4	4	4
354	Metalworking Machinery.....	189,558	783,451	149,011	321,667	562,364	1,256,387	178,689	214,543	2	2	3
3541	Machine Tools.....	54,747	226,772	41,555	88,644	150,588	316,740	52,384	70,657	4	4	4
3542	Metalworking Machinery, n.e.c.....	46,686	186,152	36,064	80,017	129,677	330,070	44,772	54,988	4	3	4
3543	Cutting Tools, Jigs, Fixtures, etc.....	87,155	370,527	71,392	153,006	282,102	609,577	81,533	88,898	4	3	5
355	Special Ind. Machinery, n.e.c.....	186,662	701,241	141,708	303,065	484,443	1,099,218	184,724	215,987	2	2	3
3551	Food Products Machinery.....	29,796	109,231	21,373	44,867	69,902	173,918	29,187	36,839	3	3	7
3552	Textile Machinery.....	60,492	178,039	39,161	86,622	128,676	299,119	49,847	53,583	3	4	4
3553	Woodworking Machinery.....	13,148	48,313	10,065	22,039	31,915	78,158	15,642	18,942	10	8	8
3554	Paper-Industries Machinery.....	12,939	51,054	9,761	20,728	34,279	74,415	17,088	17,088	5	8	5
3555	Printing-Trades Machinery.....	22,298	87,535	16,679	35,477	61,219	141,855	23,512	24,752	2	2	3
3559	Special Industry Machinery, n.e.c.....	57,989	227,069	44,669	93,332	158,453	331,753	55,411	68,063	4	5	7
356	General Ind. Machinery.....	183,190	685,939	130,957	269,701	440,468	1,276,725	180,267	217,402	2	2	3
3561	Pumps & Compressors.....	44,016	155,104	30,600	60,740	99,308	268,416	44,714	54,726	4	4	4
3563	Conveyors.....	25,130	95,855	17,376	35,468	58,354	144,965	25,289	24,578	4	7	7
3564	Blowers & Fans.....	12,018	43,604	8,961	20,682	28,493	78,803	12,940	14,794	8	7	15
3565	Ind. Trucks & Tractors.....	12,372	45,807	8,990	19,247	29,716	87,222	11,444	13,974	5	5	9
3566	Power-Transmission Equip.....	43,710	168,226	34,051	71,016	121,042	278,646	43,607	54,316	4	3	4
3567	Industrial Furnaces & Ovens.....	5,853	22,807	3,810	7,351	12,269	37,788	6,341	8,341	10	4	4
3568	Mechanical Stokers.....	2,801	9,108	2,081	4,026	6,458	16,926	4,111	4,111	3	2	2
3569	General Ind. Machinery, n.e.c.....	26,984	106,639	17,986	36,515	61,677	201,501	34,335	34,335	6	5	5
357	Office & Store Machines.....	87,090	317,203	72,336	146,039	243,245	542,399	81,192	97,778	1	1	1
3571	Computing & Related Machines.....	42,664	167,293	35,911	73,065	133,015	260,684	41,112	46,375	1	2	1
3572	Typewriters.....	19,692	61,408	17,906	35,798	54,129	113,764	17,608	26,604	2	3	2
3576	Scales & Balances.....	7,117	24,676	4,443	8,838	13,365	42,426	6,122	6,526	1	1	2
3579	Office & Store Machines, n.e.c.....	17,617	63,826	14,076	28,350	42,736	125,525	16,350	18,273	2	2	2
358	Service & Household Machines.....	200,037	728,399	161,050	326,580	544,293	1,373,754	169,503	220,286	3	3	5
3581	Domestic Laundry Equip.....	22,797	82,186	17,887	37,446	59,593	165,761	18,556	28,403	1	4	1
3582	Laundry & Dry-Cleaning Machinery.....	6,485	22,613	4,830	10,132	15,227	42,730	9,093	9,093	9	15	8
3583	Sewing Machines.....	19,429	72,386	16,453	33,238	57,964	105,346	15,325	15,305	5	4	8
3584	Vacuum Cleaners.....	11,254	42,735	8,702	17,464	30,297	101,309	10,656	14,880	7	9	7
3585	Refrigeration Machinery.....	122,737	443,240	101,132	202,489	342,856	833,835	96,491	129,290	3	3	3
3586	Measuring & Dispensing Pumps.....	9,476	36,471	6,721	13,966	21,681	71,044	8,534	12,083	3	5	5
359	Misc. Machinery Parts.....	180,750	643,325	148,395	302,928	480,571	1,128,032	162,354	200,977	2	3	3
3591	Valves & Fittings.....	70,284	261,964	56,786	115,823	188,669	456,915	64,246	80,075	4	5	4
3592	Fabricated Pipe & Fittings.....	10,514	38,304	8,236	16,557	26,795	64,303	9,867	10,568	3	6	7
3593	Ball & Roller Bearings.....	48,256	173,022	40,854	85,973	140,942	282,397	42,527	52,174	4	6	4
3599	Machine Shops.....	51,696	170,035	42,519	84,575	124,165	304,417	58,160	58,160	5	5	5
	36—ELECTRICAL MACHINERY.....	759,873	\$2,517,870	606,523	1,214,979	\$1,789,480	\$4,793,948	663,147	801,359	1	1	1
361	Electrical Ind. Apparatus.....	279,330	981,840	215,146	435,295	669,666	1,778,814	265,033	321,352	2	1	2
3611	Wiring Devices & Supplies.....	44,364	136,921	36,811	73,174	97,568	272,540	33,815	38,367	3	3	5
3612	Carbon & Graphite Products.....	8,576	28,776	7,051	14,347	21,854	59,387	7,494	7,818	4	3	6
3613	Electrical Measuring Instruments.....	19,143	65,544	14,263	28,642	43,357	113,314	16,180	20,926	4	4	8
3614	Motors & Generators.....	93,189	327,958	72,405	147,230	235,657	573,436	93,758	127,012	2	2	2
3615	Transformers.....	33,363	119,693	23,912	49,771	79,006	242,739	34,216	36,635	3	2	3
3616	Electrical Control Apparatus.....	65,060	246,105	48,567	96,977	155,305	417,333	67,115	72,330	4	4	3

MARKET AND PRODUCT DATA

General industry statistics of electrical and transportation equipment and instrument and miscellaneous manufacturers.

METALWORKING PLANT STATISTICS (CONTINUED)

Govt. Ind. Code	Description of Industry Groups	1950						1949	1947	Standard Error of 1950 & 1949 Estimates (pct) for Columns*								
		All Employees		Production Workers			Value Added by Manufacture	All Employees (average for the yr)	All Employees (average for the yr)									
		Number (average for the yr)	Salaries & Wages, Total	Number (average for the yr)	Man-hours, Total	Wages, Total												
													A	B	C	D	E	F	G	H	A	F	G
3617	Continued																	
3619	Electrical Welding Apparatus	5,592	\$27,385	3,674	8,178	\$15,350	\$51,262	6,299	7,265	6	6	8						
	Electrical Ind. Apparatus, n.e.c.	10,043	29,458	8,263	16,976	21,569	48,803		10,999	7	3							
3621	Electrical Appliances	46,725	154,600	38,453	75,751	115,280	340,953	36,490	44,371	2	2	2						
3631	Insulated Wire & Cable	18,244	56,169	14,746	31,843	41,341	116,079	17,355	21,282	4	3	3						
3641	Engine Electrical Equip.	39,971	149,315	32,516	69,280	117,038	263,847	36,890	43,920	1	1	1						
3651	Electric Lamps	21,079	61,588	16,888	37,614	49,480	165,170	19,468	23,842	1	1	2						
366	Communication Equip.	314,337	985,942	254,577	502,697	705,562	1,866,201	249,791	303,391	2	1	2						
3661	Radios & Related Products	202,478	601,217	170,826	333,193	449,092	1,157,032	149,225	178,595	3	2	3						
3662	Electronic Tubes	46,915	141,845	40,552	84,037	110,638	297,603	27,988	27,703	1	1	1						
3663	Phonograph Records	6,572	20,633	5,099	10,842	15,269	56,852		10,045	6	7							
3664	Telephone & Telegraph Equip.	49,863	191,591	32,518	63,512	113,493	303,970	59,504	76,072	1	1	1						
3669	Communication Equip., n.e.c.	8,509	30,656	5,582	11,113	17,070	50,744		10,976	10	6							
369	Misc. Electrical Products	39,587	128,416	31,197	62,499	91,093	262,884	38,120	43,201	2	2	2						
3691	Storage Batteries	16,388	57,973	12,927	26,436	42,450	120,419	15,742	16,570	3	4	3						
3692	Primary Batteries	10,008	27,610	6,657	17,043	22,149	49,908	9,516	10,231	1	1	1						
3693	X-ray & Therapeutic Apparatus	4,945	18,297	3,172	6,594	9,980	31,688	5,306	7,678	5	4	6						
3699	Electrical Products, n.e.c.	8,266	24,536	6,441	12,426	16,534	60,869	7,556	8,692	5	4	8						
	37—TRANSPORTATION EQUIP.	1,216,387	\$4,679,459	1,005,883	2,060,313	\$3,856,460	\$8,546,828	1,139,983	1,181,680	1	1	1						
371	Motor Vehicles & Equipment	756,937	2,960,512	655,532	1,342,275	2,448,123	6,122,196	679,947	701,121	1	1	1						
3717	Motor Vehicles & Parts	720,788	2,639,371	625,462	1,281,758	2,355,462	5,919,893	648,326	653,169	1	1	1						
3713	Truck & Bus Bodies	16,068	58,225	14,692	29,516	43,947	82,881	26,646	26,646	6	6							
3715	Truck Trailers	11,626	43,583	9,908	20,762	33,742	92,022		12,020	8	6							
372	Aircraft & Parts	289,545	1,132,017	211,509	450,978	760,244	1,550,551	262,643	219,611	1	1	1						
3721	Aircraft	186,020	712,427	136,890	289,833	480,268	907,880	168,206	146,625	1	1	1						
3722	Aircraft Engines	67,603	278,759	48,464	104,945	186,219	447,211	59,863	50,253	2	1	2						
3723	Aircraft Propellers	6,675	35,602	5,739	11,872	21,937	80,466	8,065	7,423	2	2	5						
3729	Aircraft Equip., n.e.c.	27,247	105,229	20,416	44,528	71,820	144,992	26,509	15,310	3	4	4						
373	Ships & Boats	86,644	299,409	72,522	136,945	224,500	379,691	102,455	149,655	4	4	5						
3731	Ship Building & Repair	74,938	253,730	62,334	116,835	194,855	326,767	90,969	130,200	4	4	4						
374	Railroad Equip.	69,592	253,108	55,503	108,049	188,891	427,853	82,255	91,116	1	1	1						
3741	Locomotives & Parts	30,089	114,568	24,194	47,926	87,316	223,775	29,798	30,337	1	1	1						
3742	Railroad & Street Cars	39,503	138,520	31,309	60,123	101,575	204,078	52,457	60,779	1	1							
3751	Motorcycles & Bicycles	10,695	35,547	8,565	17,218	28,269	52,098	9,531	15,615	2	2	4						
3799	Transportation Equip., n.e.c.	2,774	8,866	2,252	4,848	6,433	14,439	3,152	4,562	2	2	1						
	38—INSTRUMENTS & RELATED PRODUCTS	230,451	\$826,204	171,782	346,521	\$539,891	\$1,418,291	204,823	231,997	3	3	2						
3811	Scientific Instruments	25,592	104,447	16,425	34,392	60,006	128,951	15,357	20,384	3	3	3						
3821	Mechanical Measuring Instruments	59,625	213,314	45,625	93,170	147,028	369,517	46,806	53,237	3	3	3						
3831	Optical Instruments & Lenses	12,758	46,301	8,716	18,317	30,386	73,830	7,167	6,458	2	3	2						
384	Medical Instruments & Supplies	36,022	125,516	25,657	52,327	75,458	229,233	36,639	38,369	4	3	4						
3841	Surgical & Medical Instruments	6,454	23,285	5,294	11,399	17,075	34,417	6,168	6,980	8	7	15						
3842	Surgical Appliances & Supplies	22,451	78,749	15,133	30,792	44,086	151,836	23,266	22,315	5	4	5						
3843	Dental Equip. & Supplies	7,117	23,482	5,230	10,136	14,297	42,980	7,205	9,074	3	5	3						
3861	Photographic Equipment	43,740	171,771	30,858	60,957	106,365	327,880	43,811	50,911	2	2	2						
387	Watches & Clocks	32,233	106,792	27,093	53,889	77,697	189,576	33,139	40,181	6	9	3						
3871	Watches & Clocks	29,266	93,845	24,618	48,402	68,185	171,275	28,688	34,623	7	9	3						
	39—MISC. MANUFACTURES	476,697	\$1,432,901	400,874	792,953	\$1,043,742	\$2,501,432	447,260	464,420	3	3	3						

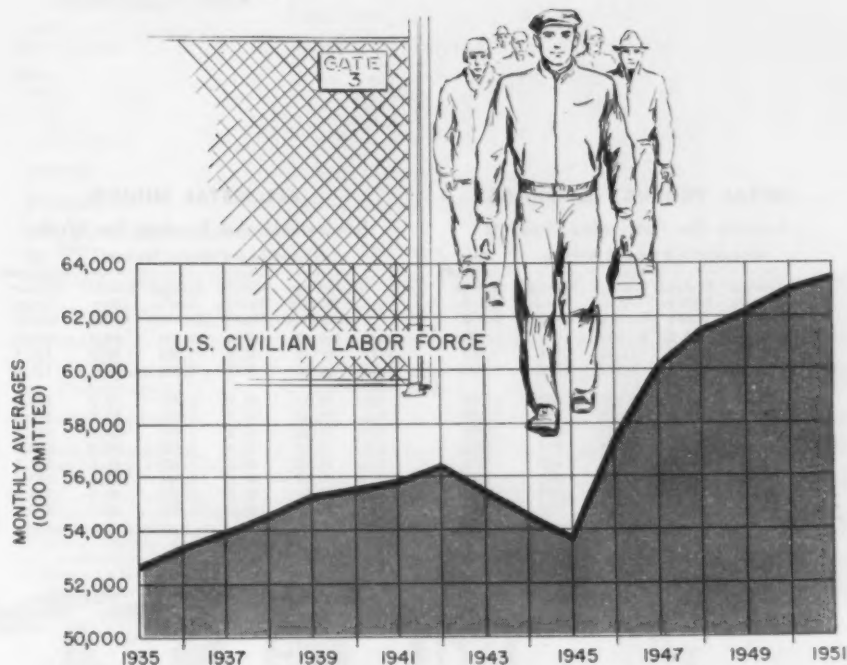
* The percentage standard errors shown in this column indicate the differences that can be expected between the estimates and comparable complete canvass totals, because of sampling fluctuations. The estimates will differ from the complete totals by less than:

1 The percentage shown: approximately 2 times out of 3

2 Twice the percentage shown: approximately 19 times out of 20

3 Three times the percentage shown: almost always

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METAL PRODUCT EARNINGS

Average For Fabricated Products

	Production and Related Workers				All Employees	
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)	
1948	\$56.68	40.6	\$1.396	812	976	
1949	57.82	39.6	1.460	701	859	
1950	63.42	41.4	1.532	776	933	
1951:						
Jan.	67.80	41.8	1.622	847	1016	
Feb.	65.18	41.7	1.635	852	1022	
Mar.	69.55	42.1	1.652	858	1031	
Apr.	69.51	42.0	1.655	859	1033	
May	69.18	41.8	1.655	850	1026	
June	69.43	41.8	1.681	843	1019	
July	67.98	41.0	1.658	814	994	
Aug.	68.35	41.3	1.655	818	996	

Source: Bureau of Labor Statistics

ALL METAL MINING

Employment and Earnings Per Worker

	Production and Related Workers				All Employees	
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)	
1948	\$80.80	42.4	\$1.934	94.7	105.1	
1949	61.55	40.9	1.505	89.0	100.1	
1950	65.58	42.2	1.554	88.4	101.0	
1951:						
Jan.	74.33	43.7	1.701	93.2	104.6	
Feb.	73.46	43.7	1.681	93.6	105.3	
Mar.	72.83	43.3	1.682	93.2	105.3	
Apr.	74.62	44.0	1.696	91.7	104.4	
May	74.96	44.2	1.696	91.3	104.1	
June	70.89	41.8	1.696	92.6	103.0	
July	72.06	41.8	1.724	92.6	105.2	
Aug.	76.37	45.0	1.697	93.2	105.7	

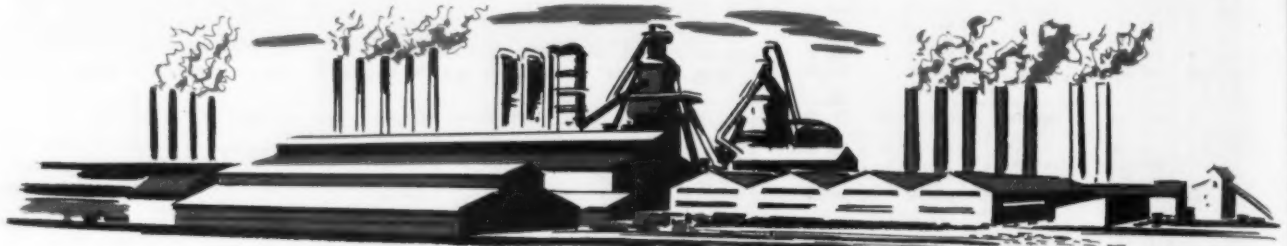
Source: Bureau of Labor Statistics

DURABLE GOODS INDUSTRIES

Employment and Earnings Per Worker

	Production and Related Workers				All Employees	
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	
1947	8,373	7,010	\$52.48	40.8	\$1.282	
1948	8,315	6,909	57.11	40.5	1.410	
1949	7,465	6,096	58.03	39.5	1.469	
1950	8,008	6,622	63.32	41.2	1.537	
1951:						
Jan.	8,742	7,250	67.65	41.5	1.630	
Feb.	8,677	7,171	68.18	41.6	1.638	
Mar.	8,969	7,428	69.30	41.9	1.654	
Apr.	9,003	7,445	69.68	42.0	1.659	
May	8,975	7,406	69.80	41.8	1.665	
June	8,998	7,409	70.27	41.8	1.661	
July	8,858	7,243	69.04	41.0	1.664	
Aug.	8,885	7,271	69.76	41.4	1.665	

Source: Bureau of Labor Statistics



STEEL—EMPLOYMENT, AVERAGE HOURS AND EARNINGS

Reported by Companies Having More Than 93 Pct of the Total Employment of the Steel Industry

Year	Employees Receiving Wages					Employees Receiving Salaries			All Employees Receiving Wages and Salaries				
	Number of Employees	Total Hours Worked	Average hrs. per Week per Employee	Total Wages	Average Earnings per hr. (Cents)	Number of Employees	Total Hours Worked	Total Salaries	Number of Employees	Total Hours Worked	Average hrs. per Week per Employee	Total Wages and Salaries	Average Earnings per hr. (Cents)
1951:													
Jan.	519,423	95,793,613	41.6	179,319,826	193.3	91,756	16,898,814	43,898,966	611,179	112,692,427	41.6	229,104,383	203.3
Feb.	523,694	84,533,778	40.4	156,136,041	191.6	92,606	16,267,947	42,965,155	616,300	100,801,725	40.9	204,930,348	203.3
March	536,032	95,866,700	40.4	178,030,268	192.0	95,014	17,171,772	43,856,195	631,046	113,038,472	40.4	227,927,105	201.6
April	537,169	93,272,992	40.5	173,462,833	192.6	96,363	17,245,300	44,876,913	633,532	110,518,292	40.7	224,533,480	203.2
May	538,114	99,128,196	41.6	186,336,347	194.2	96,953	17,772,329	45,617,061	635,067	116,900,525	41.6	238,150,165	205.7
June	543,916	94,387,688	40.5	177,617,131	195.0	97,686	17,589,257	46,201,099	641,602	111,976,945	40.7	230,212,598	205.6
July	546,254	89,970,915	37.3	169,401,427	195.5	99,170	17,838,026	45,907,581	645,424	107,808,941	37.8	221,837,900	203.0
Aug.	546,600	97,896,615	40.4	182,484,986	193.1	99,710	18,340,637	46,917,242	646,310	116,237,252	40.6	235,915,021	207.5
Sept.	544,726	91,205,326	39.1	173,613,831	197.4	99,328	17,718,514	45,950,357	644,054	108,923,840	39.5	226,018,727	207.5
1950	503,309	1,023,132,181	39.0	1,785,910,384	174.6	88,952	191,262,399	451,042,287	592,261	1,214,394,580	39.3	2,236,952,661	194.2
1949	491,615	94,655,294	34.5	1,506,465,688	170.3	82,209	188,549,827	432,827,472	580,824	1,073,204,921	35.4	1,939,293,140	180.7
1948	503,351	92,619,481	39.1	1,675,913,066	162.9	88,199	191,044,219	412,845,318	591,547	1,219,563,700	39.4	2,088,758,385	171.3
1947	489,138	96,410,347	38.6	1,489,531,509	151.3	84,531	183,172,600	368,725,376	573,669	1,167,592,947	39.0	1,858,257,885	169.2
1946	458,289	836,870,389	35.0	1,133,503,371	135.4	79,889	173,301,314	317,760,089	538,148	1,010,171,703	36.0	1,451,263,460	143.7
1945	438,825	1,009,033,709	44.1	1,288,048,553	125.7	75,178	175,093,573	276,038,234	515,003	1,184,127,282	44.1	1,548,086,787	130.6
1944	456,682	1,112,029,921	46.6	1,368,342,466	122.8	76,969	178,320,937	276,170,922	533,651	1,290,350,858	46.3	1,640,513,388	127.1
1943	487,187	1,089,760,555	42.9	1,242,032,184	114.0	77,121	168,264,429	251,002,372	564,308	1,258,024,984	42.8	1,493,034,556	118.7
1942	511,414	1,036,968,871	38.9	1,101,787,008	106.3	71,511	151,390,870	226,941,767	582,925	1,188,359,741	39.1	1,328,728,795	111.0
1941	507,306	1,019,103,012	38.5	980,845,190	96.2	63,430	133,933,316	196,892,173	570,738	1,153,036,328	38.7	1,177,737,363	102.1
1940	453,990	857,770,926	36.1	733,364,058	85.5	57,338	122,522,777	169,884,608	511,328	980,293,703	36.7	903,228,666	92.1
1939	396,220	719,125,101	34.8	608,310,659	84.6	53,421	113,744,829	153,456,397	449,641	832,889,730	35.5	761,767,066	81.5
1938	360,385	518,406,038	27.6	433,372,123	83.6	52,742	107,763,785	143,236,899	413,107	626,169,820	29.1	576,609,022	82.1
1937	479,022	918,354,648	36.8	756,950,384	82.4	55,132	121,459,120	161,161,935	534,154	1,039,813,766	37.3	918,112,299	88.3
1936	429,111	893,745,272	39.8	596,629,059	67.1	45,162	98,673,490	123,280,276	474,273	992,418,762	40.0	722,909,335	72.8

Total employees by selected industries ... total employees in U. S. by type

LABOR SAFETY

TOTAL U. S. LABOR FORCE

Employment Status, Est. (000 omitted)

Average	Total Labor Force ¹	Civilian Labor Force	Employment	Unemployment
1930	50,080	48,820	45,480	4,340
1931	50,680	49,420	46,000	4,020
1932	51,250	50,000	46,840	3,160
1933	51,840	50,590	47,680	2,910
1934	52,490	51,230	48,520	2,710
1935	53,140	51,870	49,360	2,510
1936	53,740	52,440	50,200	2,240
1937	54,320	53,000	51,040	1,960
1938	54,950	53,610	51,880	1,730
1939	55,600	54,230	52,720	1,510
1940	56,030	54,640	53,560	1,080
1941	57,380	55,910	54,720	1,190
1942	60,230	58,410	57,720	700
1943	64,410	62,540	61,470	1,070
1944	65,890	64,830	63,960	870
1945	65,140	63,860	62,820	1,040
1946	66,820	65,520	64,270	1,250
1947	61,608	60,168	58,027	2,142

1948: Jan.	60,455	59,214	57,149	2,065
Feb.	61,004	59,778	57,139	2,639
Mar.	61,005	59,769	57,329	2,440
April	61,760	60,524	58,330	2,193
May	61,660	60,422	58,680	1,781
June	64,740	63,479	61,296	2,184
July	65,135	63,842	61,615	2,227
Aug.	64,511	63,186	61,245	1,941
Sept.	63,676	62,212	60,312	1,899
Oct.	63,166	61,775	60,134	1,642
Nov.	63,138	61,724	59,893	1,831
Dec.	62,828	61,375	59,434	1,941
Aver.	62,748	61,442	59,378	2,064

1949: Jan.	61,546	60,078	57,414	2,664
Feb.	61,896	60,388	57,167	3,221
Mar.	62,305	60,814	57,647	3,167
April	62,327	60,835	57,819	3,016
May	63,462	61,983	58,694	3,289
June	64,866	63,398	59,619	3,778
July	65,276	63,815	59,720	4,095
Aug.	65,105	63,637	59,974	3,689
Sept.	64,222	62,753	59,411	3,351
Oct.	64,021	62,576	59,001	3,570
Nov.	64,363	62,927	59,818	3,409
Dec.	63,476	62,045	58,556	3,489
Aver.	63,571	62,105	59,709	3,395

1950: Jan.	62,835	61,427	58,947	4,480
Feb.	63,003	61,637	59,953	4,684
Mar.	63,021	61,675	59,751	4,123
April	63,513	62,183	59,668	3,515
May	64,108	62,788	59,731	3,057
June	66,177	64,866	61,482	3,384
July	65,742	64,427	61,214	3,213
Aug.	66,204	64,867	62,367	2,500
Sept.	66,020	64,567	61,226	2,341
Oct.	65,438	63,704	61,764	1,940
Nov.	65,453	63,512	61,271	2,240
Dec.	64,674	62,538	60,308	2,229
Aver.	64,606	63,090	59,957	3,142

1951: Jan.	61,514	59,010	2,503
Feb.	61,313	58,905	2,407
Mar.	62,325	60,179	2,147
April	61,709	60,044	1,744
May	62,803	61,193	1,609
June	63,783	61,803	1,980
July	64,362	62,526	1,856
Aug.	64,206	62,630	1,579
Sept.	63,186	61,580	1,606
Oct.	63,462	61,836	1,616
Nov.	63,164	61,336	1,828

¹ Total labor force consists of the civilian labor force and the armed forces. However, about 150,000 persons in the armed forces in April 1940 who were stationed outside continental U. S. and who were not enumerated in the 1940 Census of Population are excluded from the total labor force. Figures since 1940 have correspondingly been reduced by 150,000 for purposes of comparability.

² Monthly figures not available. At end of year adjustments due to armed forces will be made and will appear as an adjusted figure for 1951.

Source: Bureau of Labor Statistics; Bureau of Census

EMPLOYEES IN SELECTED INDUSTRY GROUPS (000 Omitted)

Industry Group and Industry	Annual Average			1951							
	1950	1949	1948	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Total Employees	44,124	43,006	44,201	45,246	45,390	45,850	45,996	46,226	46,576	46,437	46,689
Mining	904	932	981	932	933	934	910	912	927	909	928
Metal	101.0	100.1	105.1	105.2	105.7	105.3	104.4	104.1	105	105.2	105.7
Iron	35.5	33.7	36.6	36.2	36.4	36.4	36.9	37.7	38.5	38.3	39.1
Copper	28.1	27.3	27.8	29.3	29.3	29.2	28.9	28.5	28.8	28.9	28.8
Lead and zinc	19.7	20.6	21.7	21.4	21.6	21.6	20.8	20.5	20.3	20.4	20.1
Anthracite	75.1	77.3	80.0	72.7	72.9	72.2	67.6	70.4	70.2	67.7	70.6
Bituminous-coal	375.6	399.0	438.2	402.8	402.8	396.3	381.3	377.3	378.4	359.8	371.1
Crude petroleum and natural gas production	255.3	259.0	257.5	253.3	254.2	250.2	253.3	254.0	264.8	266.6	270.3
Nonmetallic mining and quarrying	97.4	96.4	100.1	98.0	97.3	99.6	103.5	105.9	106.3	106.0	106.9
Contract construction		2,156	2,165								
Manufacturing	14,884	14,146	15,286	15,784	15,971	16,022	15,928	15,839	15,946	15,937	16,010
Durable goods	8,008	7,465	8,315	8,742	8,870	8,966	8,977	8,959	8,998	8,859	8,885
Nondurable goods	6,876	6,681	6,970	7,042	7,101	7,053	6,951	6,880	6,956	6,979	7,125
Ordnance and accessories	24.7	24.8	26.1	30.8	33.7	35.5	37.6	39.7	42.3	44.2	47.0
Primary metal industries		1,101	1,247	1,327	1,331	1,341	1,343	1,343	1,357	1,341	1,352
Blast furnaces, steel works, and rolling mills	614.1	550.4	612.0	604.3	641.0	643.4	643.5	646.8	655	656.1	680.7
Iron and steel foundries	231.8	217.0	259.3	270.8	274.6	279.9	282.1	283.1	285.3	277.2	280.1
Primary smelting and refining of nonferrous metals	54.6	52.3	55.6	56.9	57.0	56.6	56.3	55.3	56.8	57.0	57.1
Rolling, drawing, and alloying of nonferrous metals	96.9	87.0	103.8	103.7	104.3	104.0	102.9	99.2	101.2	97.7	97.3
Nonferrous foundries	93.0	75.8	85.2	110.1	109.7	110.7	110.8	110.8	109.9	106.8	109.1
Other primary metal industries	129.8	118.4	130.7	144.1	144.1	146.0	147.1	147.6	148.8	146.2	147.2
Fabricated metal products (except ordnance machinery and transportation equipment)	933	899	978	1,016	1,023	1,031	1,034	1,025	1,019	994	996
Tin cans and other tinware	48.4	45.8	48.7	50.7	48.2	48.9	49.4	49.1	49.7	49.2	50.7
Cutlery, hand tools, and hardware	156.9	142.3	154.4	168.4	168.9	167.1	165.8	163.8	161.9	157.4	158.2
Heating apparatus (except electric) and plumbers' supplies	150.6	132.0	165.8	158.8	160.9	162.7	161.1	158.4	157.9	152.0	150.6
Fabricated structural metal products	201.4	196.5	215.9	220.4	222.1	225.9	228.5	230.0	227.3	229.3	232.3
Metal stamping, coating, and engraving	169.8	147.9	172.2	187.4	190.7	192.3	193.2	186.6	185.7	174.8	169.1
Other fabricated metal products	206.1	192.4	219.0	230.0	232.5	234.5	235.7	235.0	236.6	230.8	234.6
Machinery (except electrical)	1,352	1,311	1,533	1,526	1,580	1,579	1,588	1,598	1,611	1,595	1,568
Engines and turbines	72.6	72.5	83.8	83.2	83.6	85.7	88.3	89.4	92.1	91.4	94.5
Agricultural machinery and tractors	172.4	181.3	191.3	186.8	189.7	192.1	193.2	193.3	195.8	194.5	167.6
Construction and mining machinery	100.7	101.3	122.6	114.0	116.6	117.0	117.6	119.1	120.7	120.5	121.3
Metalworking machinery	220.2	208.7	239.5	268.1	276.2	282.6	285.8	288.8	294.3	295.5	290.4
Special-industry machinery (except metal-working machinery)	167.6	171.0	201.9	188.5	192.8	194.8	196.2	196.7	197.9	197.4	198.8
General industrial machinery	168.5	166.4	209.8	216.4	221.5	224.1	226.1	226.9	227.7	229.5	231.3
Office and store machines and devices	90.9	90.6	109.1	100.0	101.8	102.3	103.4	104.7	105.0	101.8	104.4
Service-industry and household machines	176.2	145.4	191.3	181.7	185.2	184.1	178.4	178.0	173.2	163.3	156.0
Miscellaneous machinery parts	162.7	153.2	183.4	188.9	192.7	195.9	199.1	201.2	203.0	201.2	202.1
Electrical machinery	836	759	869	924	933	944	937	928	932	920	933
Electrical generating, transmission, distribution, and industrial apparatus	317.3	295.2	332.9	349.0	352.2	359.0	362.3	367.9	376.3	373.6	376.9
Electrical equipment for vehicles	70.1	64.5	69.0	77.9	78.6	79.4	80.7	81.8	81.5	81.4	81.8
Communication equipment	309.2	271.1	312.2	345.1	349.2	353.4	342.0	327.7	324.6	318.8	326.3
Electrical appliances, lamps, and miscellaneous products	139.8	128.3	154.8	151.8	152.7	152.3	151.7	150.3	150.0	145.9	147.8
Transportation equipment	1,273	1,212	1,263	1,425	1,483	1,527	1,514	1,512	1,525	1,508	1,515
Automobiles	839.4	769.0	792.8	897.6	921.6	935.6	909.8	894.6	875.6	840.5	833.9
Aircraft and parts	275.3	255.6	228.1	352.2	376.1	400.0	414.1	426.3	451.7	470.2	484.4
Aircraft	184.0	169.7	151.7	234.7	252.6	271.4	279.7	286.9	304.9	319.3	329.1
Aircraft engines and parts	54.5	51.8	46.7	70.4	73.6	77.2	81.2	84.3	89.6	91.9	94.3
Aircraft propellers and parts	8.1	7.9	7.4	9.4	9.3	9.5	10.2	10.4	10.5	10.4	10.8
Other aircraft parts and equipment	26.7	26.2	22.4	37.8	40.5	41.9	43.0	44.7	46.7	48.6	50.5
Ship and boat building and repairing	84.4	100.3	140.7	96.5	109.0	109.5	108.3	108.8	112.4	114.5	112.7
Ship building and repairing ²	71.4	88.2	124.2	82.4	94.7	95.5	93.7	94.2	97.7	99.9	99.3
Railroad equipment	62.2	76.1	84.8	66.3	63.1	68.6	69.7	71.6	74.4	72.1	72.6
Other transportation equipment	11.4	10.9	16.6	12.3	13.2	13.2	11.9	11.1	10.8	10.7	11.1
Instruments and related products	250	238	280	280	285	290	294	296	299	299	301
Ophthalmic goods	25.4	26.8	28.2	27.2	27.7	27.8	28.0	28.1	27.8	27.8	27.5
Photographic apparatus	51.3	52.6	60.3	55.6	56.8	57.8	58.2	58.4	60.6	59.4	62.3
Watches and clocks	30.1	31.4	40.8	33.3	34.1	34.2	34.5	33.9	34.1	33.0	33.7
Professional and scientific instruments	143.4	127.1	130.5	164.1	166.6	170.0	173.3	175.3	176.5	178.5	177.5
Miscellaneous manufacturing industries	459	428	466	489	503	508	500	486	479	460	467
Jewelry, silverware, and plated ware	54.8	55.4	60.3	57.3	58.4	58.6	55.1	52.8	50.5	48.7	48.4
Toys and sporting goods	73.3	68.7	80.8	71.5	75.3	78.0	79.3	76.7	75.1	70.6	73.0
Costume jewelry, buttons, notions	58.2	57.7	62.3	62.0	65.1	64.5	60.7	55.6	54.3	52.4	53.9
Other miscellaneous manufacturing industries	272.3	243.8	282.8	298.3	304.4	301.2	305.7	308.6	298.9	287.9	291.1

Employment in manufacturing industries
... electrical machinery earnings ...
work stoppages, men involved, days idle

EMPLOYEES, MANUFACTURING BY STATES

Annual Averages for 1949 and 1950. Monthly Averages Thru August 1951 (In Thousands)

State	Annual Average 1949	Annual Average 1950	1951							
			Jan.	Feb.	March	April	May	June	July	Aug.
Alabama	205.4	213.5	220.9	224.0	224.7	217.4	216.1	224.0	220.5	219.1
Arizona	14.9	14.9	16.4	17.0	17.4	17.7	18.0	18.8	18.3	18.7
Arkansas	69.3	74.2	76.6	76.7	78.1	77.7	76.5	78.6	77.1	76.9
California	713.7	758.8	804.4	823.5	832.9	840.8	842.1	850.8	879.4	833.8
Colorado	54.0	57.3	60.7	59.8	59.9	60.6	60.9	62.0	64.4	65.1
Connecticut		371.2	403.8	410.4	410.2	418.7	418.0	417.3	413.2	416.5
Delaware	44.3	48.4	48.7	48.9	49.3	49.3	50.1	50.6	60.9	54.5
District of Columbia	17.1	16.0	16.5	16.2	16.0	16.8	16.7	17.2	17.5	17.3
Florida	80.4	95.0	103.9	105.7	105.7	102.7	100.8	99.5	95.9	96.2
Georgia	262.3	261.8	290.6	291.5	291.4	290.9	290.5	288.5	291.9	294.6
Idaho	20.2	21.8	21.1	19.8	20.2	21.2	23.0	25.3	26.5	25.1
Illinois	1,138.2	1,167					1,210	1,216	1,232	1,196
Indiana	516.8	563.1	598.4	603.7	606.8	600.2	597.7	597.4	591.2	592.2
Iowa	144.6	149.4	158.2	159.7	158.7	160.0	159.4	161.9	162.2	163.2
Kansas	87.3	92.2	103.4	106.6	109.0	108.6	110.0	113.6		115.3
Kentucky	130.1	138.9	154.0	152.9	147.9	146.1	144.7	145.6	144.4	145.2
Louisiana	137.0	135.9	136.5	136.7	138.5	137.7	138.9	140.8	139.6	140.0
Maine	104.4	107.7	109.2	111.5	109.4	107.4	109.5	115.6	116.2	117.8
Maryland	210.4	215.5	223.9	234.5	237.5	245.6	249.0	255.2	259.8	278.3
Massachusetts	651.2	701.3	741.6	753.2	744.2	747.8	736.6	734.4	723.0	732.4
Michigan	980.7	1,065.5	1,140.2	1,177.9	1,159.7	1,149.4	1,132.6	1,085.1	1,085.1	1,071.6
Minnesota	186.4	194.9	199.7	201.6	203.7	203.3	202.5	206.1	211.1	212.2
Mississippi	77.4	84.9	87.6	86.0	87.8	89.7	89.7	88.7	88.3	89.4
Missouri	334.1	347.8	363.8	367.5	369.0	367.2	368.8	372.2	370.4	378.3
Montana	17.9	18.2	17.8	17.3	17.3	18.7	16.9	17.5	17.5	17.7
Nebraska	48.2	49.8	52.5	52.3	52.4	52.6	53.1	55.2	55.3	55.5
Nevada	3.0	3.2	3.3	3.3	3.3	3.4	3.4	3.5	3.6	3.8
New Hampshire	74.5	77.4	81.1	83.1	82.4	82.3	79.0	80.1	79.6	82.0
New Jersey	702.9	724.5	769.3	779.2	771.4	774.5	765.0	766.3	757.8	766.3
New Mexico	10.8	11.5	12.4	12.7	12.8	13.1	13.3	13.4	13.4	14.0
New York	1,764.5	1,821.5	1,917.1	1,944.3	1,951.1	1,905.1	1,870.0	1,885.8	1,882.9	1,940.8
North Carolina	384.3	414.8	431.1	432.2	431.3	410.1	412.8	416.6	410.9	416.7
North Dakota	5.8	6.0	6.3	6.0	6.0	5.8	5.9	6.0	6.0	6.0
Ohio	1,098.3	1,183.6	1,274.3	1,284.5	1,289.3	1,287.8	1,283.7	1,285.0	1,269.8	1,282.6
Oklahoma	64.4	65.9	68.7	68.3	70.3	71.7	72.2	73.5	74.4	75.5
Oregon	127.2	135.6	129.5	132.8	131.8	141.2	145.7	152.9	151.5	158.5
Pennsylvania	1,356.5	1,403.3	1,492.9	1,506.4	1,515.5	1,519.4	1,500.9	1,500.8	1,481.8	1,485.8
Rhode Island	130.8	145.7	156.9	160.2	151.2	154.4	149.9	147.6	143.5	136.1
South Carolina	200.3	208.3	216.4	217.3	218.5	213.8	214.5	216.6	213.5	215.3
South Dakota	11.2	11.2	11.2	11.0	10.9	11.0	11.1	11.6	11.7	11.8
Tennessee	236.4	245.9	257.2	260.1	261.3	259.6	259.0	255.7	254.9	257.7
Texas	331.1	351.6	377.9	381.6	385.2	386.1	383.9	391.1	394.3	396.8
Utah	27.7	28.5	28.3	28.2	28.6	28.8	29.2	30.7	32.9	32.7
Vermont	34.2	35.7	38.1	39.2	38.0	40.0	39.2	39.3	39.9	39.3
Virginia	217.4	226.2	237.6	238.6	240.8	231.8	234.4	239.1	238.7	245.7
Washington	170.6	169.3	171.6	180.5	179.4	182.2	190.4	195.3	197.0	197.8
West Virginia	128.3	137.3	137.8	137.5	140.3	141.2	142.6	142.6	140.7	142.1
Wisconsin	405.5	426.8	447.0	448.3	453.7	453.9	452.7	457.2	462.2	472.6
Wyoming	8.4	6.1	6.1	6.0	6.0	5.9	6.0	6.2	6.4	6.5

Source: Bureau of Labor Statistics

ELECTRICAL MACHINERY

Employment and Earnings Per Worker

	Production and Related Workers				All Employees Number (thous- ands)
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thous- ands)	
1948	\$55.66	40.1	\$1.388	656	886
1949	56.96	39.5	1.442	552	790
1950	60.83	41.1	1.480	638	836
1951					
Jan.	64.42	41.4	1.556	711	924
Feb.	64.80	41.3	1.569	716	931
Mar.	65.34	41.3	1.582	724	944
Apr.	65.56	41.3	1.588	718	941
May	66.57	41.5	1.604	707	930
June	67.15	41.5	1.618	704	932
July	65.85	40.3	1.634	690	929
Aug.	66.18	40.7	1.626	701	933

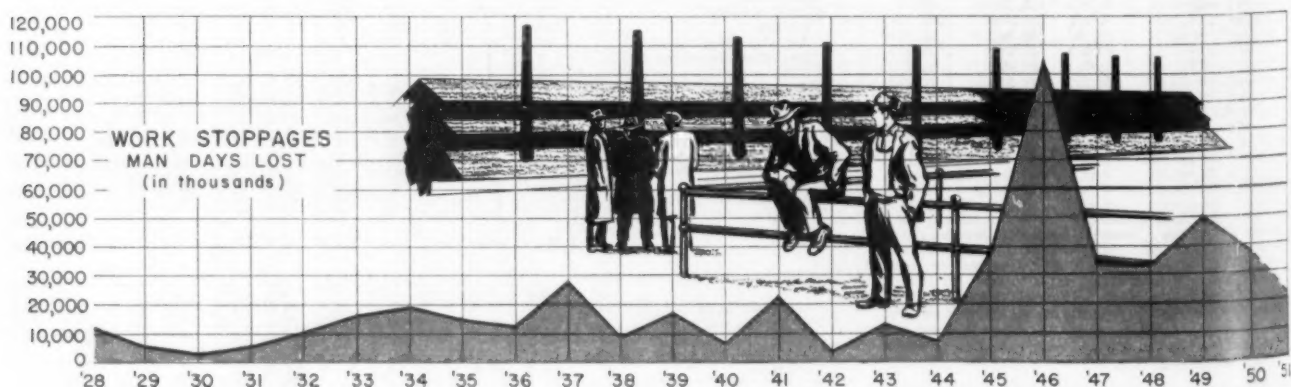
Source: Bureau of Labor Statistics

WORK STOPPAGES—1927-1951

Workers Involved and Man-days Idle

	Work Stoppages Beginning in Period		Man-days Idle (all stoppages)	
	Number	Workers Involved Number (thousands)	Number (thousands)	Per Worker Involved
1927	707	330	28,230	79.5
1928	604	314	12,600	40.2
1929	921	289	5,350	18.5
1930	637	183	3,320	18.1
1931	810	342	6,690	20.2
1932	841	324	16,500	32.4
1933	1,695	1,170	16,900	14.4
1934	1,856	1,470	19,600	13.4
1935	2,014	1,120	15,600	13.8
1936	2,172	789	13,900	17.8
1937	4,740	1,860	28,400	15.3
1938	2,772	688	9,150	13.3
1939	2,613	1,170	17,800	15.2
1940	2,508	577	6,700	11.6
1941	4,288	2,360	23,000	9.8
1942	2,968	840	4,180	5.0
1943	3,752	1,980	13,600	66.8
1944	4,956	2,120	8,720	4.1
1945	4,750	3,470	38,000	11.0
1946	4,985	4,600	116,000	25.2
1947	3,693	2,170	34,600	15.9
1948	3,419	1,960	34,100	17.4
1949	3,606	3,030	50,500	16.7
1950	4,843	2,410	38,800	16.1
1951				
Jan.	400	185	1,200	0.15
Feb.	400	220	1,700	0.28
Mar.	350	140	2,300	0.29
Apr.	350	165	1,850	0.28
May	400	150	1,750	0.22
June	375	190	1,600	0.23
July	425	250	1,750	0.32
Aug.	425	250	2,750	0.32
Sept.	400	200	2,400	0.34

Source: Bureau of Labor Statistics.



Manufacturing employment and wages . . .
Federal civilian payroll, number and wages
. . . Consumer price index, in cities.

LABOR & SAFETY

CONSUMERS' PRICE INDEX IN LARGE CITIES

For Moderate-Income Families by Group of Selected Commodities, 1935-39 = 100

Period	All Items	Food	Apparel	Rent	Total	Fuel, Electric	House Furnishings	Miscellaneous
1914	71.8	61.8	69.8	92.2	62.3	62.3	60.7	51.9
1915	72.5	60.9	71.4	92.9	62.5	62.5	63.6	53.6
1916	77.9	90.8	78.3	94.0	65.0	65.0	70.9	56.3
1917	91.6	116.9	94.1	93.2	72.4	72.4	82.9	65.1
1918	107.5	134.4	127.5	94.9	94.2	94.2	106.4	77.0
1919	123.8	149.8	168.7	102.7	91.1	91.1	134.1	87.6
1920	143.3	168.6	201.0	120.7	106.9	106.9	164.6	100.5
1921	127.7	128.3	154.8	138.6	114.0	114.0	138.5	104.3
1922	119.7	119.9	125.6	142.7	113.1	113.1	117.5	101.2
1923	121.9	124.0	125.9	146.4	115.2	115.2	126.1	100.8
1924	122.2	122.6	124.9	151.6	113.7	113.7	124.0	101.4
1925	125.4	132.9	122.4	152.2	115.4	115.4	121.5	102.2
1926	126.4	137.4	120.6	150.7	117.2	117.2	118.8	102.6
1927	124.0	132.3	118.3	148.3	115.4	115.4	115.9	103.2
1928	122.6	130.8	116.5	144.8	113.4	113.4	113.1	103.8
1929	122.5	132.5	115.3	141.4	112.5	112.5	111.7	104.6
1930	119.4	126.0	112.7	137.5	111.4	111.4	108.9	105.1
1931	108.7	103.9	102.6	130.3	108.9	108.9	96.0	104.1
1932	97.6	86.5	90.8	116.9	103.4	103.4	85.4	101.7
1933	92.4	84.1	87.9	100.7	100.0	100.0	84.2	98.4
1934	95.7	93.7	96.1	94.4	101.4	101.4	92.8	97.9
1935	98.1	100.4	95.8	94.2	100.7	100.7	94.8	98.1
1936	99.1	101.3	97.6	95.4	100.2	100.2	96.3	98.7
1937	102.7	105.3	102.8	100.9	100.2	100.2	104.3	101.0
1938	100.8	97.8	102.2	104.1	99.9	99.9	103.3	101.5
1939	99.4	95.2	100.5	104.3	99.0	99.0	101.3	100.7
1940	100.2	96.6	101.7	104.6	99.7	99.7	100.5	101.1
1941	105.2	105.5	106.3	106.2	102.2	102.2	107.3	104.0
1942	116.5	123.9	124.2	108.5	105.4	105.4	122.2	110.9
1943	123.6	138.0	129.7	108.0	107.7	107.7	125.6	115.8
1944	125.5	136.1	138.8	108.2	109.8	109.8	136.4	121.3
1945	128.4	139.1	115.9	108.3	110.3	110.3	145.8	124.1
1946	139.3	150.6	180.2	108.6	112.4	112.4	159.2	128.8
1947	159.2	193.8	185.8	111.2	121.1	121.1	184.4	139.9
1948	171.2	210.2	198.0	117.4	133.9	133.9	195.0	149.9
1949	169.1	210.9	190.1	120.8	137.5	137.5	189.0	154.6
1950	171.9	204.4	187.7	131.0	140.6	140.6	180.2	156.5
1951: Jan.	181.5	221.9	198.5	133.2	143.3	143.3	207.4	162.1
Feb.	183.8	226.0	202.0	134.0	143.9	143.9	209.7	163.2
March	184.5	226.2	203.1	134.7	144.2	144.2	210.7	164.3
April	184.6	225.7	203.6	135.1	144.0	144.0	211.8	164.6
May	185.4	227.4	204.0	135.4	143.6	143.6	212.6	165.0
June	185.2	226.9	204.0	135.7	143.8	143.8	212.5	164.8
July	185.5	227.7	203.6	136.2	144.0	144.0	212.4	165.0
Aug.	185.5	227.0	203.6	136.8	144.2	144.2	210.8	165.4
Sept.	186.6	227.3	209.0	137.5	144.4	144.4	211.1	166.0

Source: Bureau of Labor Statistics

FEDERAL CIVILIAN WORKERS

Totals, Continental and All Areas

Year and Month	All Branches	Executive, Total	Legislative	Judicial
1948	2,066,152	2,055,397	7,273	3,482
1949	2,100,407	2,089,151	7,661	3,595
1950	2,080,500	2,068,800	8,100	3,600
1951: Jan.	2,204,300	2,192,300	8,100	3,900
Feb.	2,265,500	2,253,500	8,100	3,900
Mar.	2,332,300	2,320,200	8,200	3,900
Apr.	2,385,500	2,373,500	8,100	3,900
May	2,432,800	2,420,500	8,200	3,900
June	2,462,300	2,450,100	8,300	3,900
July	2,503,400	2,491,000	8,500	3,900
Aug.	2,520,400	2,508,400	8,100	3,900
1948	1,846,840	1,836,158	7,273	3,409
1949	1,921,903	1,910,724	7,661	3,518
1950	1,930,500	1,918,700	8,100	3,700
1951: Jan.	2,047,400	2,035,600	8,100	3,600
Feb.	2,105,000	2,093,100	8,100	3,600
Mar.	2,169,300	2,157,300	8,200	3,600
Apr.	2,219,900	2,208,000	8,100	3,600
May	2,263,900	2,251,000	8,200	3,600
June	2,290,500	2,278,400	8,300	3,600
July	2,329,800	2,317,500	8,500	3,600
Aug.	2,348,300	2,336,400	8,100	3,600

Source: Bureau of Labor Statistics

FEDERAL CIVILIAN PAYROLLS

For U. S. and All Areas (000 omitted)

Year and Month	All Areas	All Branches
1948	\$8,223,486	\$8,223,486
1949	8,699,270	8,699,270
1950	7,028,907	7,028,907
1951: Jan.	680,983	680,983
February	627,280	627,280
March	706,194	706,194
April	687,876	687,876
May	749,607	749,607
June	721,693	721,693
July	735,991	735,991
August	765,418	765,418
1948	\$5,731,115	\$5,731,115
1949	6,234,345	6,234,345
1950	6,591,536	6,591,536
1951: Jan.	641,387	641,387
February	592,217	592,217
March	664,389	664,389
April	648,017	648,017
May	708,217	708,217
June	677,497	677,497
July	693,408	693,408
August	726,728	726,728

Source: Bureau of Labor Statistics

ALL MANUFACTURING EMPLOYMENT AND WAGES

For Production and Related Workers, Average Employment, Hours and Earnings

	All Employees	Production and Related Workers						
		Number (thousands)	Number (thousands)	Indexes (1939 Averages = 100)		Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
				Employment	Payroll			
1940.....	10,780	8,811	107.5	113.6	\$25.20	38.1	\$0.661	
1941.....	12,974	10,877	132.8	164.9	29.58	40.6	.729	
1942.....	15,051	12,854	156.9	241.5	36.65	42.9	.853	
1943.....	17,381	15,014	163.3	331.1	43.14	44.9	.961	
1944.....	17,111	14,607	176.3	343.7	46.06	45.2	1.019	
1945.....	16,302	12,859	167.0	293.5	44.39	43.4	1.023	
1946.....	14,461	12,108	147.8	271.1	43.74	40.4	1.084	
1947.....	15,247	12,794	156.2	326.9	49.97	40.4	1.237	
1948.....	15,286	12,717	155.2	351.4	54.14	40.1	1.350	
1949.....	14,146	11,597	141.6	325.3	54.92	39.2	1.401	
1950.....	14,951	.....	149.7	371.7	59.33	40.5	1.465
1951: Jan.....	15,764	.....	158.9	424.0	63.78	41.0	1.555
Feb.....	15,978	.....	161.0	430.0	63.84	40.9	1.561
Mar.....	16,022	.....	161.0	435.0	64.57	41.1	1.571
Apr.....	15,955	.....	160.0	433.2	64.70	41.0	1.578
May.....	15,853	.....	158.6	428.4	64.55	40.7	1.586
June.....	15,956	.....	158.5	434.3	65.08	40.7	1.599
July.....	15,837	.....	157.6	424.1	64.32	40.2	1.600
Aug.....	16,010	.....	159.7	431.3	64.58	40.4	1.598

Source: Bureau of Labor Statistics

LABOR SAFETY

Injury rates by industries . . . Index of plant workers . . . Employment in coke industry . . . Labor turn-over rates

INJURY RATES BY INDUSTRY—1950

Permanent and Temporary Disabilities by Frequency and Severity

Industry	Number of Units	Frequency Rates				Severity Rates	
		Fatal, Permanent Total	Permanent Partial Disability	Temporary Total Disability	All Disabilities	Rate	Rank
All Reporting Industries, 1949	7,185	.08	.64	9.42	10.14	1.02	..
All Reporting Industries, 1950	6,395	.06	.57	8.65	9.30	.94	..
Aircraft Manufacturing.....	19	.06	.48	3.63	4.17	.81	14
Air Transport.....	11	.16	.05	14.31	14.52	1.15	28
Automobile.....	233	.03	.60	4.15	4.78	.50	10
Cement.....	141	.19	.86	3.98	4.83	1.89	34
Chemical.....	520	.08	.37	5.37	5.82	.76	18
Clay Products.....	144	.09	.80	23.21	24.10	1.46	32
Communications.....	60	.01	.01	2.03	2.05	.12	1
Construction.....	506	.32	.56	18.46	19.34	2.72	37
Electrical Equipment.....	163	.01	.50	3.77	4.28	.37	6
Electric Utilities.....	252	.23	.38	11.35	11.96	1.96	35
Food.....	490	.05	.74	12.16	12.95	.87	23
Foundries.....	164	.12	.89	12.19	13.20	1.40	31
Gas Utilities.....	407	.06	.52	15.45	16.03	.79	19
Glass.....	52	.02	.50	6.83	7.35	.45	8
Leather.....	64	.03	.53	13.04	13.40	.80	9
Lumber.....	101	.38	1.28	45.18	46.84	4.79	39
Machinery.....	273	.02	1.20	7.45	8.67	.57	12
Marine Transport.....	42	.13	.39	16.22	16.74	1.37	30
Meat Packing.....	86	.03	.34	10.88	11.25	.54	11
Mining, Coal.....	124	.94	1.06	41.64	43.64	7.91	40
Mining, Other Than Coal.....	203	.31	1.26	24.26	25.83	3.25	38
Misc. Iron & Steel Products.....	295	.04	.96	10.96	11.96	.81	20
Misc. Manufacturing.....	68	.01	.86	5.35	6.22	.33	5
Non-Ferrous Metals & Prods.....	100	.13	1.47	12.09	13.69	1.67	33
Petroleum.....	249	.07	.32	9.69	10.08	.84	21
Printing & Publishing.....	44	.07	.40	6.48	6.88	.25	4
Pulp and Paper.....	369	.07	.76	10.97	11.80	1.05	27
Quarry.....	252	.21	.75	17.27	18.23	2.00	36
Railroad Equipment.....	29	.04	1.69	4.01	5.74	.92	25
Railroads.....				14.36			
Rubber.....	66	.05	.51	6.49	7.05	.70	16
Service.....	104			8.61	8.61	.19	2
Sheet Metal.....	110	.01	1.03	7.55	8.59	.72	17
Shipbuilding.....	35	.07	.33	6.61	7.01	.92	26
Steel.....	128	.12	.83	3.68	4.63	1.29	29
Storage & Warehousing.....	66	.03	.24	9.72	9.99	.69	15
Textile.....	216	.04	.72	7.00	7.76	.61	13
Tobacco.....	38		.35	5.38	5.73	.23	3
Transit.....	153	.08	.19	13.63	13.90	.87	22
Wholesale & Retail Trade.....	39	.03	.04	8.95	9.02	.38	7
Wood Products.....	77	.06	.70	16.03	16.79	.86	24

Source: National Safety Council

INDEXES OF PLANT WORKERS

Manufacturing Employment, Payrolls (1939 average=100)

	Employment	Weekly Payroll
1940: Average.....	107.5	113.6
1941: Average.....	132.8	144.9
1942: Average.....	156.9	241.6
1943: Average.....	163.3	331.1
1944: Average.....	178.3	343.7
1945: Average.....	157.0	293.5
1946: Average.....	147.8	271.1
1947: Average.....	156.2	326.9
1948: Average.....	155.2	351.4
1949: Average.....	141.6	325.3
1950: Average.....	149.7	371.7
1951: Jan.....	156.9	424.0
Feb.....	161.0	439.8
Mar.....	161.0	435.0
Apr.....	160.0	433.2
May.....	158.6	428.4
June.....	157.5	424.4
July.....	157.6	424.1
Aug.....	159.7	431.3

Source: Bureau of Labor Statistics

COKE, BYPRODUCTS INDUSTRY

Employment and Earnings Per Worker

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1945	20.0	17.5	58.56	39.7	1.475
1949	19.3	16.9	61.07	39.3	1.554
1950	20.8	18.1	62.85	39.7	1.583
1951:					
Jan.	21.3	18.5	68.82	40.2	1.712
Feb.	21.3	18.4	69.63	40.2	1.732
Mar.	21.4	18.5	68.08	39.4	1.729
Apr.	21.5	18.6	68.96	40.0	1.724
May	21.6	18.7	69.12	40.0	1.729
June	22.0	19.1	70.42	40.1	1.756
July	22.3	19.3	70.92	40.5	1.751
Aug.	22.4	19.4	70.36	40.3	1.746

Source: Bureau of Labor Statistics

LABOR TURN-OVER RATES IN MANUFACTURING INDUSTRIES

Per 100 Employees, By Class of Turn-Over Per Month

Class of Turn-Over and Year	January	February	March	April	May	June	July	August	September	October	November	December
Total Accession:												
1951.....	5.2	4.5	4.6	4.5	4.5	4.9	4.2	4.4	4.5 ²			
1950.....	3.6	3.2	3.6	3.5	4.4	4.8	4.7	6.6	5.7	5.2	4.0	3.0
1949.....	3.2	2.9	3.0	2.9	3.5	4.4	3.5	4.4	4.1	3.7	3.3	3.2
1948.....	4.6	3.9	4.0	4.0	4.1	5.7	4.7	5.0	5.1	4.5	3.9	2.7
1947.....	6.0	5.0	5.1	5.1	4.6	5.8	4.9	5.3	5.9	5.5	4.8	3.6
1946.....	8.5	6.8	7.1	6.7	6.1	6.7	7.4	7.0	7.1	6.8	5.7	4.3
1945.....	7.0	5.0	4.9	4.7	5.0	5.9	5.8	5.9	7.4	8.6	8.7	6.9
Total Separation:												
1951.....	4.1	3.8	4.1	4.8	4.8	4.3	4.4	5.2	5.0 ²			
1950.....	3.1	3.0	2.9	2.8	3.1	3.0	2.9	4.2	4.9	4.3	3.8	3.6
1949.....	4.6	4.1	4.8	4.8	5.2	4.3	3.8	4.0	4.2	4.1	4.0	3.2
1948.....	4.3	4.2	4.5	4.7	4.3	4.5	4.4	5.1	5.4	4.5	4.1	4.3
1947.....	4.9	4.5	4.9	5.2	5.4	4.7	4.6	5.3	5.9	5.0	4.0	3.7
1946.....	6.8	6.3	6.6	6.3	6.3	5.7	5.8	6.6	6.9	6.3	4.9	4.5
1945.....	6.2	6.0	6.6	6.6	7.0	7.9	7.7	17.9	12.0	8.6	7.1	5.8
Quit: ⁴												
1951.....	2.1	2.1	2.5	2.7	2.8	2.5	2.4	3.1	3.2 ²			
1950.....	1.1	1.0	1.2	1.3	1.6	1.7	1.8	2.9	3.4		2.1	1.7
1949.....	1.7	1.4	1.6	1.7	1.6	1.5	1.4	1.8	2.1	1.5	1.2	.9
1948.....	2.6	2.5	2.8	3.0	2.8	2.9	2.9	3.4	3.0	2.8	2.2	1.7
1947.....	3.5	3.2	3.5	3.7	3.5	3.1	3.1	4.0	4.5	3.6	2.7	2.3
1946.....	4.3	3.9	4.2	4.3	4.2	4.0	4.6	5.3	5.3	4.7	3.7	
1945.....	4.6	4.3	5.0	4.8	4.8	5.1	5.2	6.2	6.7	5.6	4.7	4.0
Discharge:												
1951.....	.3	.3	.3	.4	.4	.4	.3	.4	.4 ³			
1950.....	.2	.2	.2	.2	.3	.3	.3	.4	.4		.3	.3
1949.....	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2
1948.....	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.3
1947.....	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
1946.....	.5	.5	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4
1945.....	.7	.7	.7	.6	.6	.7	.6	.7	.6	.5	.5	.4
Lay-off: ⁴												
1951.....	1.0	.8	.8	1.0	1.2	1.0	1.3	1.3	1.2 ²			
1950.....	1.7	1.7	1.4	1.2	1.1	.9	.6	.6	.7	.8	1.1	1.3
1949.....	2.5	2.3	2.8	2.8	3.3	2.5	2.1	1.8	1.8	2.3	2.5	2.0
1948.....	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.2	1.0	1.2	1.4	2.2
1947.....	.9	.8	.9	1.0	1.4	1.1	1.0	.8	.9	.8	.8	.9
1946.....	1.8	1.7	1.8	1.4	1.5	1.2	.6	.7	1.0	1.0	1.0	1.8
1945.....	.8	.7	.7	.8	1.2	1.7	1.5	10.7	4.5	2.3	1.7	1.3

¹ Prior to 1943, rates relate to wage earners only.

² Preliminary figures.

³ Prior to September 1940, miscellaneous separations were included with quits.

⁴ Including temporary, indeterminate (of more than 7 days' duration) and permanent lay-offs.

Death rate by industry . . . Accidents to workers . . . occupational death rate . . . Weekly earnings in transportation

LABOR SAFETY

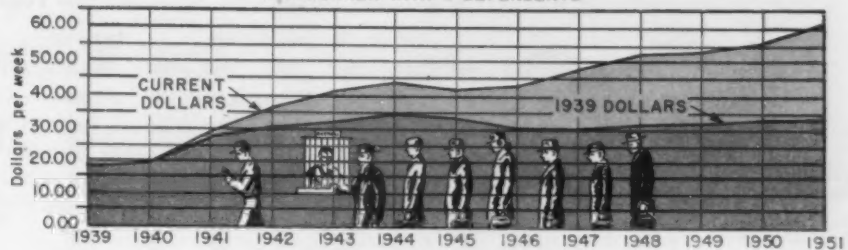
TRANSPORTATION—EARNINGS (equipment)

Employment and Hours Per Worker

	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1948	\$61.58	39.0	\$1.579	1,031	1,263
1949	64.85	39.2	1.657	987	1,212
1950	71.18	41.0	1.736	1,044	1,273
1951					
Jan.	72.06	39.9	1.806	1,175	1,425
Feb.	74.05	40.8	1.815	1,233	1,493
Mar.	75.73	41.2	1.838	1,243	1,527
Apr.	74.81	40.9	1.829	1,233	1,520
May	74.97	40.9	1.833	1,235	1,513
June	75.14	40.4	1.860	1,237	1,525
July	74.76	40.0	1.869	1,204	1,508
Aug.	76.64	40.8	1.876	1,214	1,515

Source: Bureau of Labor Statistics

NET SPENDABLE WEEKLY EARNINGS FOR WORKER WITH 3 DEPENDENTS



SPENDABLE WEEKLY EARNINGS OF WORKERS

Gross & Net Average Earnings of Production Workers in Manufacturing Industries¹

Period	Gross Average Weekly Earnings		Net Spendable Average Weekly Earnings			
	Amount	Index (1939=100)	Worker With No Dependents		Worker With 3 Dependents	
			Current Dollars	1939 Dollars	Current Dollars	1939 Dollars
1939: Average.....	23.88	100.0	23.58	23.58	23.62	23.62
1940: Average.....	25.20	105.6	24.69	24.49	24.95	24.75
1941: Average.....	29.58	124.0	28.05	26.51	29.28	27.67
1942: Average.....	36.65	153.6	31.77	27.11	36.28	30.96
1943: Average.....	43.14	180.8	36.01	29.97	41.39	33.30
1944: Average.....	46.08	193.1	38.29	30.32	44.06	34.89
1945: Average.....	44.39	186.0	36.97	28.61	42.74	33.08
1946: Average.....	43.74	183.3	37.65	28.87	43.13	30.78
1947: Average.....	49.97	209.4	42.76	28.70	48.24	30.12
1948: Average.....	54.14	226.9	47.43	27.54	53.17	30.87
1949: Average.....	54.92	230.2	48.09	28.27	53.83	31.64
1950: Average.....	59.33	248.7	51.09	29.54	57.21	33.08
1951: Jan.....	63.76	267.2	53.49	29.29	60.56	33.17
Feb.....	63.84	267.6	53.55	28.95	60.62	32.78
March.....	64.57	270.6	54.13	29.16	61.21	32.99
April.....	64.70	271.2	54.23	29.20	61.31	33.01
May.....	64.55	270.5	54.11	29.01	61.19	32.81
June.....	65.08	272.8	54.53	29.27	61.62	33.07
July.....	64.32	269.6	53.93	28.90	61.01	32.69
Aug.....	64.58	270.6	54.12	29.00	61.20	32.79

¹ Net spendable average weekly earnings are obtained by deducting from gross average weekly earnings, social security and income taxes for which the specified type of worker is liable. The amount of income tax liability depends on the number of dependents supported by the worker as well as on the level of his gross income. Net spendable earnings have, therefore, been computed for 2 types of income-receivers: (1) A worker with no dependents; (2) A worker with 3 dependents.

The computation of net spendable earnings for both the factory worker with no dependents and the factory worker with 3 dependents are based upon the gross average weekly earnings for all production workers in manufacturing industries without direct regard to marital status and family composition. The primary value of the spendable series is that of measuring relative changes in disposable earnings for 2 types of income-receivers. That series does not, therefore, reflect actual differences in levels of earnings for workers of varying age, occupation, skill, family composition, etc.

Source: Bureau of Labor Statistics

DEATH RATES BY INDUSTRY

Deaths of Workers, Major Industries

Industry Group	Total Deaths 1950	Deaths per 100,000 Workers		
		1948	1949	1950
Trade.....	1,500	14	12	12
Service.....	2,200	15	14	14
Manufacturing.....	2,600	16	16	17
Public utilities.....	300	29	30	27
Transportation.....	1,300	48	45	43
Agriculture.....	4,300	55	54	57
Construction.....	2,300	93	91	93
Mining, quarrying, oil and gas wells.....	1,000	154	105	110

Source: National Safety Council

ACCIDENTS TO ALL WORKERS

Death and Injury, Place of Accident

Place of Accident	1949		1950	
	Deaths	Injuries	Deaths	Injuries
At work.....	15,000	1,850,000	15,500	1,950,000
Away from work.....	31,500	2,800,000	32,000	2,550,000
Motor vehicle.....	18,500	600,000	18,000	650,000
Public non-motor vehicle.....	7,800	950,000	7,300	900,000
Home.....	7,200	1,050,000	6,700	1,000,000

Source: National Safety Council

OCCUPATIONAL DEATH RATES

Deaths Per 10⁵ Workers, 1933-1950

Year	Deaths	No. of Workers (Millions)	Deaths per 100,000 Workers
1934	16,000	42	38
1935	16,500	43	38
1936	18,500	45	41
1937	19,000	46	41
1938	16,000	44	36
1939	15,500	45	34
1940	17,000	46	37
1941	18,000	49	37
1942	18,500	52	36
1943	17,500	53	33
1944	16,000	52	31
1945	16,500	51	32
1946	16,500	53½	31
1947	17,000	56½	30
1948	16,500	57½	29
1949	15,000	57	26
1950	15,500	58	27

Source: National Safety Council

REFINING OF ALUMINUM

Employment and Earnings Per Worker

Year	Production and Related Workers			
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Production Workers (thousands)
1948	\$58.85	41.4	\$1.424	7.9
1949	61.95	41.3	1.500	7.8
1950	63.97	40.9	1.564	9.0
1951: Jan.....	69.41	41.0	1.693	9.5
Feb.....	69.21	41.0	1.688	9.8
Mar.....	69.68	41.1	1.695	9.8
Apr.....	71.19	41.8	1.703	9.9
May.....	71.06	41.7	1.704	9.4
June.....	72.63	42.4	1.713	10.3
July.....	72.93	42.4	1.720	10.2
Aug.....	71.39	41.8	1.716	10.4

Source: Bureau of Labor Statistics

METALWORKING MACHINERY

Employment and Earnings Per Worker

Year	Production and Related Workers				All Employees
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings	Number (thousands)	Number (thousands)
1948	\$62.94	42.1	\$1.495	186.6	239.5
1949	61.11	39.5	1.547	157.9	208.7
1950	70.54	42.7	1.652	169.0	220.2
1951					
Jan.	76.91	43.5	1.768	204.4	268.1
Feb.	79.83	44.8	1.790	211.3	277.2
Mar.	80.28	44.7	1.798	218.4	282.6
Apr.	82.58	45.7	1.807	222.9	287.0
May	82.17	45.6	1.802	226.7	286.6
June	85.08	46.8	1.818	232.6	294.3
July	83.17	45.9	1.812	232.6	295.5
Aug.	88.24	46.4	1.837	227.1	290.4

Source: Bureau of Labor Statistics

CHANGES IN INJURY RATES, 1935-1939 TO 1950

Index Numbers Above 100 Indicate Percentage Increases From Base Period; Below 100, Decreases

Industry	Base Period	Frequency Rate Index Numbers						Frequency Change 1949-50	Severity Rate Index Numbers						Severity Change 1949-50
		1943	1945	1947	1948	1949	1950		1943	1945	1947	1948	1949	1950	
All Reporting Industries.....	1935-39	111	104	101	88	77	71	- 8%	77	75	79	72	66	61	- 8%
Aircraft Manufacturing.....	1941	135	99	97	62	58	57	- 2%	157	193	137	147	133	203	+53%
Air Transport.....	1942	169	131	126	116	100	112	+12%	180	114	141	125	25	77	+203%
Automobile.....	1935-39	98	98	96	81	61	46	-25%	78	77	81	80	70	62	-12%
Cement.....	1935-39	144	148	134	126	96	89	- 7%	80	67	99	96	78	67	-14%
Chemical.....	1935-39	111	111	98	83	63	64	+ 2%	93	88	76	74	50	63	+27%
Clay Products.....	1935-39	184	105	131	106	121	131	+ 8%	174	83	180	153	226	142	-37%
Communications.....	1935-39	61	55	55	48	40	38	- 4%	38	11	23	25	21	17	-29%
Construction.....	1935-39	60	77	94	64	76	75	- 1%	76	69	81	77	66	83	+27%
Electrical Equipment.....	1935-39	125	111	105	97	84	75	-11%	83	75	78	78	66	64	- 3%
Electric Utilities.....	1935-39	107	119	137	131	124	106	-18%	94	78	100	88	99	82	-17%
Food.....	1935-39	133	140	126	111	99	80	-19%	102	110	102	96	79	76	- 3%
Foundries.....	1935-39	112	92	105	88	58	55	- 5%	108	130	92	119	98	96	- 2%
Gas Utilities.....	1935-39	92	105	156	141	127	114	-11%	93	105	118	105	93	75	-20%
Glass.....	1935-39	128	108	125	109	91	84	- 8%	111	112	90	66	63	62	- 2%
Leather.....	1935-39	124	98	121	112	102	97	- 5%	167	122	55	83	79	86	+ 9%
Lumber.....	1935-39	97	119	110	90	88	86	- 2%	105	117	121	107	108	110	+ 3%
Machinery.....	1935-39	194	150	157	139	117	94	-20%	99	81	104	106	92	72	-22%
Marine Transportation.....	1935-39	205	238	118	104	96	74	-23%	126	104	75	61	56	37	-34%
Meat Packing.....	1935-39	99	115	86	69	49	44	-12%	89	104	70	...	...	45	-55%
Mining, Coal.....	1935-39	113	121	104	...	...	83	+ 5%	91	105	74	...	...	69	+18%
Mining, Other Than Coal.....	1935-39	160	177	347	...	...	177	-23%	99	96	106	...	...	56	-30%
Misc. Iron and Steel Products.....	1935-39	120	116	100	107	95	92	- 4%	97	113	80	101	88	80	- 9%
Non-Ferrous Metals and Products.....	1935-39	190	165	136	118	116	134	+15%	97	98	82	72	85	92	+ 6%
Petroleum.....	1935-39	94	105	96	80	77	74	- 4%	79	81	81	71	63	51	-19%
Printing and Publishing.....	1935-39	149	133	117	105	72	73	+ 2%	152	82	128	86	48	50	+ 9%
Pulp and Paper.....	1935-39	129	123	110	91	67	71	+ 2%	102	85	83	68	61	63	+ 3%
Quarry.....	1935-39	137	79	137	153	140	146	+ 5%	129	34	94	86	102	51	-50%
Railroad Equipment.....	1935-39	155	166	87	82	90	62	-31%	130	93	72	81	105	59	-43%
Rubber.....	1935-39	141	148	114	106	65	89	+38%	104	107	96	89	70	96	+37%
Service.....	1935-39	141	158	110	88	63	84	+35%	102	746	73	291	107	68	-37%
Sheet Metal Products.....	1935-39	79	126	98	74	69	65	- 3%	58	122	102	88	68	71	+ 4%
Shipbuilding.....	1935-39	226	148	145	96	84	67	-21%	101	83	157	80	92	86	-28%
Steel.....	1935-39	95	93	78	76	64	60	- 7%	96	90	82	85	77	66	-13%
Textile.....	1935-39	177	158	116	116	104	102	- 2%	131	117	93	100	98	105	+ 7%
Transit.....	1935-39	129	170	166	114	99	88	-11%	87	97	88	83	49	56	+14%
Wood Products.....	1935-39	154	184	186	155	143	116	-19%	125	170	189	145	126	84	-33%

Source: Individual company reports to the National Safety Council

UNSAFE ACTS AND CAUSES OF PERMANENT DISABILITIES

Deaths and Unsafe Acts (1937 to 1941 incl.) Broken Down For Ten Major Industries

Unsafe Act or Cause	All Industries*		Ma- chinery	Steel	Sheet Metal	Metal Products	Non- Ferrous Metals	Chemical	Pulp and Paper	Food	Public Utility	Con- struction
	Number	Pct										
UNSAFE CONDITION												
Total Accidents.....	4,818	...	800	449	295	303	291	355	360	262	707	243
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Hazardous arrangement or procedure....	1,634	34	33	41	26	27	36	35	40	28	30	41
Improper guarding.....	1,214	25	22	22	36	24	21	22	28	26	30	18
Defective agencies.....	747	15	14	15	14	16	20	18	17	17	15	21
Unsafe dress or apparel.....	277	6	8	5	6	6	8	5	3	5	8	7
Improper illumination, ventilation.....	32	1	1	1	..	..	..	..	..	2	1	2
No unsafe condition.....	914	19	25	18	18	27	18	19	13	22	18	11
UNSAFE ACT												
Total Accidents.....	3,112	...	584	244	200	187	202	214	208	182	453	187
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unnecessary exposure to danger.....	796	25	25	27	20	21	31	24	31	29	22	30
Unsafe, or improper use of equipment....	467	15	19	15	21	13	13	11	17	7	12	12
Working on moving or dangerous equip.	428	14	13	15	13	12	9	16	14	19	12	9
Non-use personal protective equipment..	275	9	7	9	6	7	9	7	6	4	20	9
Improper starting or stopping.....	284	9	12	8	3	12	10	9	8	7	9	13
Overloading, poor arranging.....	214	7	7	9	5	4	6	8	10	5	5	9
Making safety devices inoperative.....	157	5	5	1	9	8	4	4	2	4	8	2
Operating at unsafe speed.....	93	3	7	2	3	4	2	3	3	5	2	5
No unsafe act.....	398	13	9	14	20	19	16	16	9	20	10	11

* Includes information from industries other than the ten for which detailed information is shown.

** Less than half of one per cent.

Source: National Safety Council

In the preceding pages of statistics every effort has been made to include important data useful to the metalworking and metalproducing industry. A similar effort has been made to exclude data which might be considered of minor importance. However, the editors will appreciate comments on the scope of the material so that any important omissions can be corrected in future issues.—The Editors.

CLEVELAND tapping machines

lead
screw

300 PIECES PER HOUR
BOTH SIDES TAPPED IN ONE OPERATION

For a leading appliance manufacturer Cleveland engineers designed a Cleveland Tapping Machine to tap four 10-24 and one 6-32 holes in the top face of the main casting and five 10-24 and two 8-32 holes in the bottom face... both sides simultaneously all with lead screw controlled spindles to assure complete accuracy. On needed civilian and on defense jobs Cleveland Tappers are reducing production costs and saving priceless man hours. With a Cleveland Tapper engineered to the job, a semi-skilled worker becomes a skilled operator.



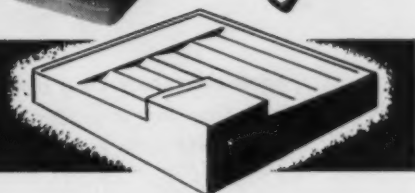
CHECK WITH CLEVELAND FIRST if you need to perform any or all of these operations: Tapping... Threading... Drilling... Spotfacing... Reaming... Chamfering. Cleveland engineers can help you with your problem, show you how to effect economies in these operations.

Mr. Lead Screw says... Write for your copy of the Cleveland Production Tapping Guide and a copy of Catalog R-6



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**exclusive inverting design renders constant
free flowing dry chemical, assuring faster,
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C-O-TWO Dry Chemical is a finely pulverized powder . . . non-conducting, non-corrosive, non-abrasive, non-freezing and non-toxic . . . special compound consists of sodium bicarbonate and other chemicals skillfully blended to render high fire extinguishing qualities, remain free flowing while being used and withstand long periods of storage without deterioration. When brought into contact with fire, C-O-TWO Dry Chemical absorbs a greater part of the heat, decomposes and releases fire killing gases. This heat absorption process acts as an insulating

screen between the fire and the fire fighter.

Fully approved and built to rigid specifications . . . C-O-TWO Dry Chemical Type Fire Extinguishers are exceedingly effective on flammable liquid, gas and electrical fires, as well as surface fires involving ordinary combustible materials . . . rated by Underwriters' Laboratories, Inc. and Factory Mutual Laboratories for class B and C fires.

Convenient 4, 20 and 30 pound hand sizes . . . no syphon tubes or valves within the cylinder to become clogged or inoperative . . . discharge hose and squeeze type discharge nozzle remain empty until actuation takes place . . . one piece removable top assembly.

Also, convenient 150 pound wheeled size . . . sturdy, wide-faced wheels . . . discharge hose and two position discharge nozzle having soft or solid stream fully enclosed in protection casing . . . footrail and dual bar handle provide easy inverting.

Act now for complete free information on these top quality fire extinguishers. Remember . . . you can't put fire off . . . fire doesn't wait. Get all the pertinent facts . . . write today!

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—Free Literature—

Continued

Machine tool

The Portage horizontal boring, drilling and milling machine described in a new booklet has been designed to meet the speed and accuracy demanded of present day defense production requirements. Rigidity, convenient control, boring bar support and rapid power traverse have been engineered into the machine. *The Portage Machine Co.*

For free copy insert No. 14 on postcard p. 493

Materials handling

Metal basket products which will speed plating and cleaning operations and reduce handling costs are described in a new bulletin. Standard baskets are available in a wide range of sizes from the small stainless steel container for handling watch parts to the large crane-lifted basket. *Hoffman Co.*

For free copy insert No. 15 on postcard p. 493

Collet chuck

The Levermatic collet chuck is described in a new 8-p. booklet. Cross-section views illustrate the unusual gripping power and fast action of the chuck. The units are precision built, simply adjusted, and permit economies through reduction of labor time. *Sutton Tool Co.*

For free copy insert No. 16 on postcard p. 493

Seam roof

"How to Construct a Batten Seam Roof," is the subject of a new 4-p. article in the latest issue of "Terne Topics." With step by step illustrations and text, the article starts with the unrolling of the seamless terne metal roll and concludes with the soldering of all joints not double locked. *Follansbee Steel Corp.*

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Moisture testing

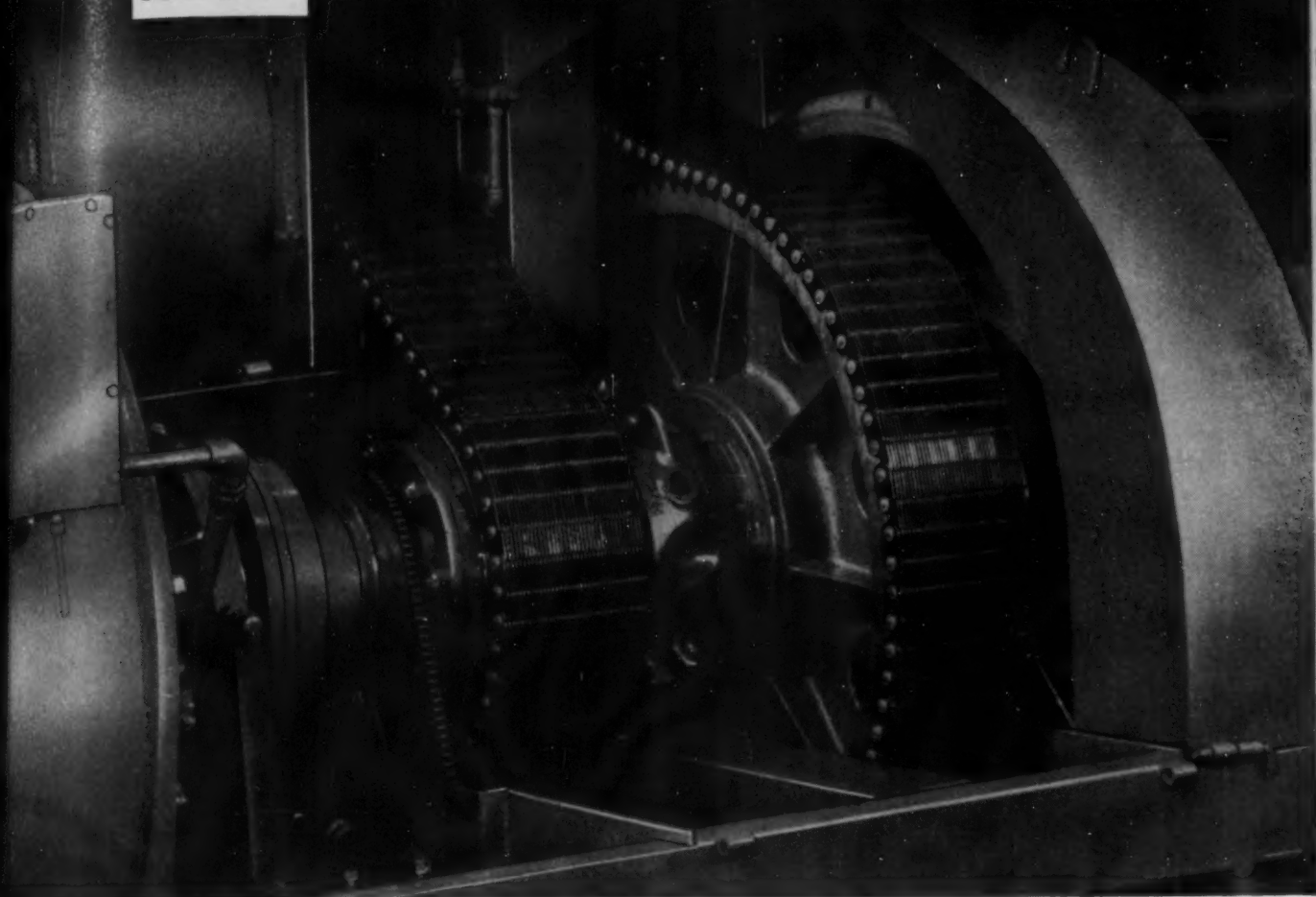
The Dietert-Detroit Moisture Tellers described in a new 12-p. booklet give accurate determinations of moisture content. *Harry W. Dietert Co.*

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Morse

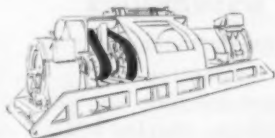
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Drive for a new age in power transmission



Now, more horsepower, greater speed plus portability possible for first time in oil field drawworks

Once, oil field drawworks powerful enough to drill 20,000-foot holes had the portability of small apartment buildings; had to be knocked down, trucked piecemeal from hole to hole site, re-assembled. Very costly.



Now, the portable model shown above supplies 1500 HP at 600 RPM. And just two 2"-pitch by 12"-wide Hy-Vo Drives transmit its power. The Hy-Vo Drives

operate at twice the speed with three times the load considered practical for conventional chain drives. Hy-Vo made this revolutionary, cost-slashing oil field development possible—and portable.

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A Morse Hy-Vo Drive will transmit more horsepower at higher speeds and lower cost than any other drive ever known. It opens the way to transmitting more horsepower from smaller, less expensive high-speed engines—without costly accessories.

Remarkable as it is, Hy-Vo is still only one of a complete line of power trans-

mission products that has made the name Morse synonymous with exceptional engineering, exceptional quality, exceptional performance.

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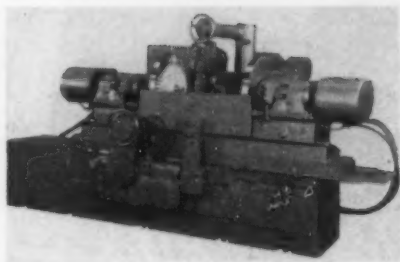
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MECHANICAL
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NEW equipment

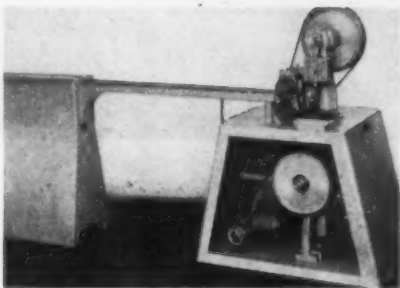
New and improved production ideas, equipment, services and methods described here offer production economies . . . fill in and mail postcard on page 493 or 494.



Grinding blade tips of jet engine rotors

A new high production plain cylindrical grinder for grinding blade tips of jet engine rotors is a 30x48 in. type CHW plain grinder with special workheads. Each headstock drive is an ac motor and power is transmitted to the spindle

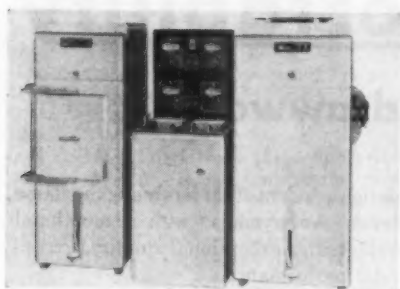
by means of multiple V belts. With the arrangement of twin headstocks with hydraulic chucking a complete jet rotor may be put in grinding position on one headstock, while the other rotor with blades is being ground. *Landis Tool Co.*
For more data insert No. 21 on postcard, p. 493



Marking and cut-off machine for tags, plates

Basically, the unit consists of two Emco presses. A feeder conveyer provides a means of approach for the material that is to be marked and subsequently cut off. A roll-feed attachment holds the section to be stamped or marked while one press performs the operation. A

second press cuts off the piece after being marked. Varied lengths, widths and thicknesses to be cut off can be selected. Aluminum, tin, plastic and solder can be handled. Shaped pieces can be produced after marking. *Klaas Machine & Mfg. Co.*
For more data insert No. 22 on postcard, p. 493



Complete setup for heat treating small tools

Temperature range in an improved small tool furnace is broad enough to permit the heat treatment of all high speed steels, even the cobalt type. The furnace includes a pre-heat furnace, a drawing furnace, an atmosphere generator, and two quench tanks (one for oil and one

for water). The drawing furnace is of the recirculating air type to permit close temperature control in the lower ranges. The small tool furnaces provides complete facilities for in-the-plant heat treating. *Waltz Furnace Co.*

For more data insert No. 23 on postcard, p. 493



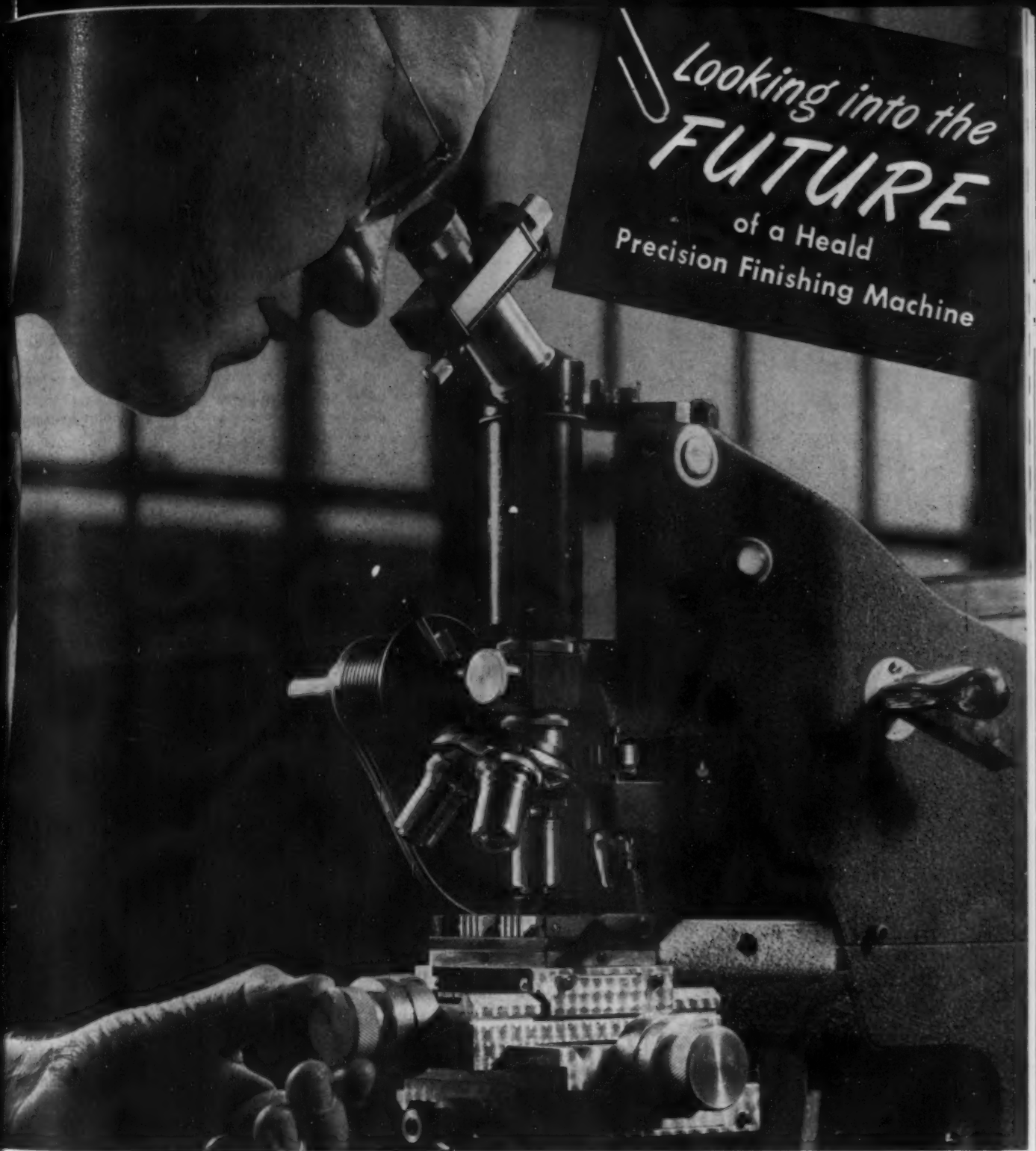
Machine makes hydraulic hose assemblies

Introduction of the hose coupling machine enables users of hydraulic hose, including manufacturing plants and industrial jobbers, to save time, avoid delays and reduce costs by making their own hose assemblies. The new desk-size machine is easy to operate, and does a complete assembly and swaging job. Ample drawer space is pro-

vided for attachments and productive material. An operator using the machine can produce a finished hose, coupled at both ends, in 4 min. The Aro two-piece steel coupling is said to take greater pressure, prevents breathing, resists corrosion. *Aro Equipment Corp.*

For more data insert No. 24 on postcard, p. 493
Turn to Page 500

Looking into the **FUTURE** of a Heald Precision Finishing Machine



THERE'S no guesswork about predicting the performance of a Heald machine. Heald engineers see to that—literally as well as figuratively. Here, for example, a skilled technician examines metal surfaces which have had the Tukon hardness test. Whether these metals are to be used in a Heald machine—or are to be *precision finished* on a Heald machine—the end result of this painstaking research is the same. More precision for your future production of essential machines and components. This is just one of the endless tests carried on in Heald's research department, to keep Heald Bore-Matics, Internal Grinding Machines and Rotary Surface Grinding Machines years ahead in design and performance.



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*Heald machines speed
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RECLAIM VITAL SCRAP *with a*



Conserve critical metals . . . increase self-sufficiency . . . eliminate scrap handling and storage problems with the press that **pays for itself**. The MILWAUKEE Briquetting Press automatically converts low-grade bulk borings, turnings, chips and shavings into dense cylindrical briquettes which can be charged directly into furnace or foundry cupolas as high-grade scrap.

Steel, aluminum, cast iron, bronze, magnesium, brass and other metals can be briquetted by a MIL-



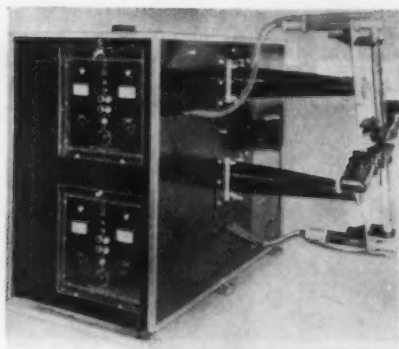
MILWAUKEE

CASTINGS ARE PERMANENT

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New Equipment

Continued

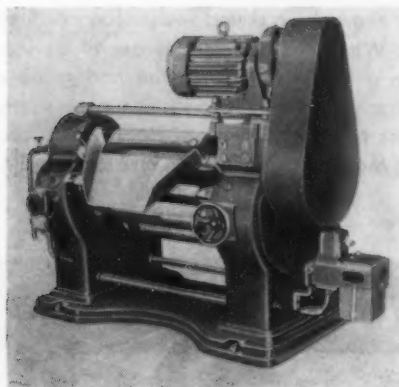


Gage measures tin plate thickness on steel plate

An improved tin plate thickness gage provides a non-destructive method for checking the efficient and economical use of this critically short metal. The design utilizes an X-ray beam that is directed upon the surface of the sheet under test. Through proper control of the beam, the tin plating is penetrated, the beam striking the un-

derlying steel. Rays emitted by the iron are measured by Geiger counters and the intensity can be expressed as a logarithmic function of tin plate thickness. In practice this is reduced to a reading on a printing register. Instrument handles coatings 0 to 150 micro-inches thick. *North American Philips Co.*

For more data insert No. 25 on postcard, p. 493.



Grating machine features parallel adjustment

The Pfeuffer three-roll grating machines incorporate as a basically new feature the precision single-wheel parallel adjustment. Accurate parallel adjustment is an important requirement for securing a first-rate and uniform output and in addition eliminates a one-sided load on the ball bearings, as well as uneven wear of the rolls. Resetting, if required, is simplicity itself and can be carried out while

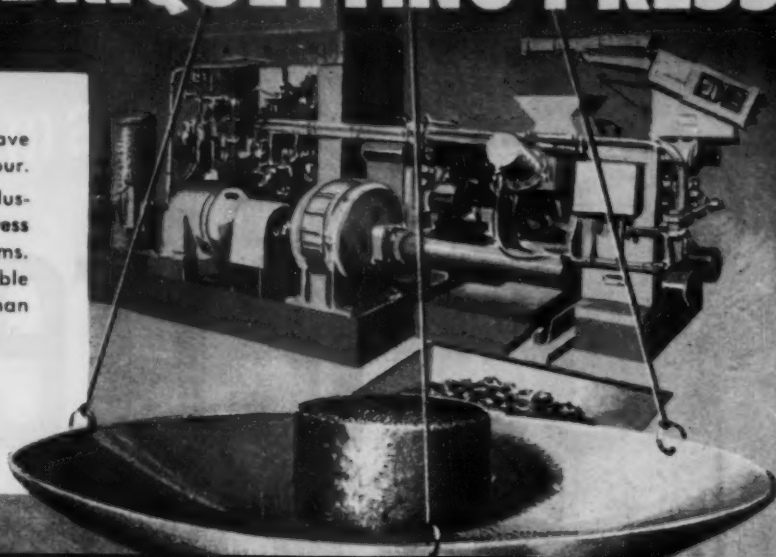
the machine is running. A grating efficiency indicator above the hand-wheel permits accurate control of roll clearances and roll pressures. Water is fed to the rolls for cooling. Rolls are arranged in a parabolic pattern. This facilitates handling and permits continuous operation as two machines may be set up one behind the other. *Annoncen-Expedition Kraiss.*

For more data insert No. 26 on postcard, p. 493.

MILWAUKEE BRIQUETTING PRESS

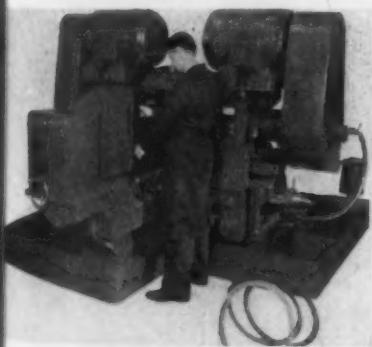
MILWAUKEE press. Six models are available which have capacities ranging from $\frac{3}{4}$ to $3\frac{1}{2}$ tons per hour. Leading manufacturers in the metal working industry are utilizing the MILWAUKEE Briquetting Press to solve their vital material and scrap problems. Savings effected by the MILWAUKEE Press enable most users to write off the entire cost in less than one year.

Write today for 8-page illustrated Bulletin No. 117 for complete data and specifications.



Foundry Equipment Division

Cleveland 25, Ohio

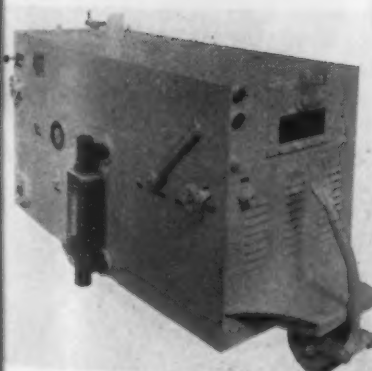


Double spindle grinder handles large clutch plates

Grinding parallel sides of steel or bronze-faced clutch plates is accomplished on a new double spindle grinder that rotates or revolves the work between two ring-type abrasive disks. Plates ranging from $12\frac{1}{2}$ to 19 in. OD and measuring approximately 0.126 in. thick can be handled. A heavy cast iron base supports the grind-

ing head slides. Each head, with its 4-in. spindle is provided with a tilting feature that permits setting the 26-in. diam abrasive disks at proper angle for best grinding results. Three variable speed, grooved rollers riding on the ID of the clutch plate, rotate it during the grinding. *Gardner Machine Co.*

For more data insert No. 27 on postcard, p. 493.



Hydraulic power unit used for testing equipment

Designed to provide hydraulic power for testing equipment, modernizing older machinery and for emergency power, a heavy duty oil hydraulic power unit is easily towed and can be used anywhere electric power is available. Units are built with fixed volume pumps in sizes to 60 gpm at 2000 psi. Handwheel and pressure compensated controls enable users to meet specific job

needs to 5000 psi and 75 hp. Valve combinations and hand control of two pressure lines permit pump to take suction from built-in 100 gal tank or from an outside source, for testing purposes. Micronic filter, relief valve, flow meter, pressure gages and electric controls are all mounted in welded steel frame. *Rucker Co.*

For more data insert No. 28 on postcard, p. 493.

Turn to page 504

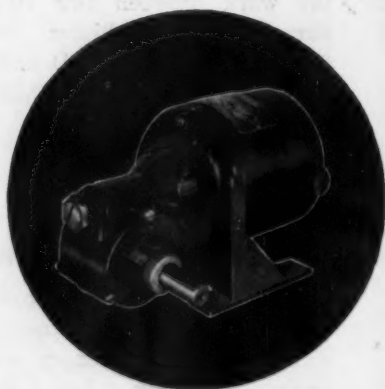
January 3, 1952

501

NOW **Janette's**

SUB-FRACTIONAL GEAR MOTORS

from 1/150 to 1/8 H. P. Ratings



UD 25



UD 25 D

Janette

E L E C T R I C M F G . C O

(Subsidiary, Girty-Michigan Corporation)

556 W. MONROE ST. CHICAGO 6, ILLINOIS
after March 1st—Morton Grove, Ill.

... make famous Janette dependability
available to small horsepower users

Power reduction for certain types of mechanical operations—in which speed and power must be precision-controlled—requires top-quality sub-fractional gear motors and at low cost.

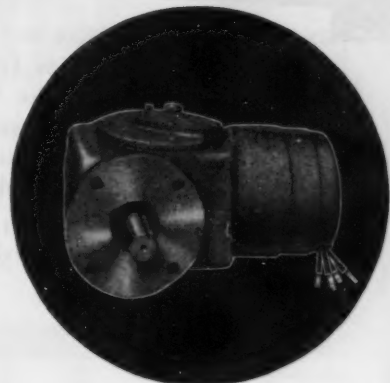
Janette, long famous for "the right speed, the right power," now answers such needs with a new series of sub-fractional gear motors at extremely attractive prices.

These include a complete range of horsepower ratings from 1/150 to 1/8, with a selection of over 200 gear-ratios.

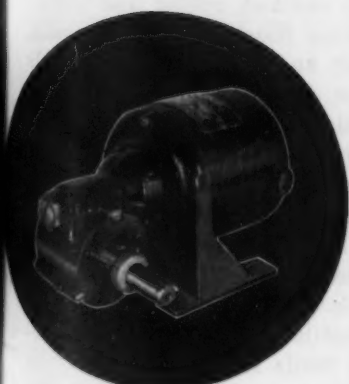
Write for free, complete technical information on sub-fractional gear motors, fractional and integral types of gear motors, rotary convertors, motor generators and dynamotors.



B0



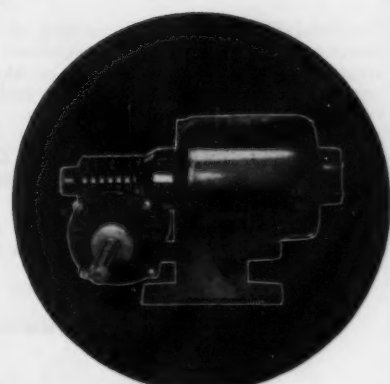
C8S2



UD 29



C8S2



UD 33

Janette

"THE RIGHT SPEED, THE RIGHT POWER"

tru·steel*

lasts 12 times longer

.....
than ordinary abrasives

at CARBON MALLEABLE CASTINGS Co., Lancaster, Pa.

COMPARISON CHART

	CHILLED IRON	TRU-STEEL
Consumption per Wheel Hour	36.458 lbs.	3.234 lbs.
Loads Cleaned per 10 lbs. of abrasive	2.06	28
Abrasive used in 96 Wheel Hours	3500 lbs.	310 lbs.

savings (96 Wheel Hours) **3190 lbs.**

How would you like to cut your abrasive consumption 91%? It sounds fantastic, but that's exactly what happened at the Carbon Malleable Castings Company when they switched to Tru-Steel Shot. For, 310 lbs. of Tru-Steel cleaned a quantity of work requiring 3500 lbs. of chilled iron. Wearable parts, such as blades, impellers, control cages, end liners and deflectors, all had 3 to 5 times longer life.

HERE'S WHY TRU-STEEL lasts longer

Tru-Steel Shot is perfectly formed of electric induction furnace steel that has received a full heat treatment . . . not just a draw or anneal. It is round and solid, hard and tough, and accurately controlled as to quality and hardness.

With Tru-Steel, wearable parts last longer and less machine maintenance is required. There is less abrasive to ship and store, and cleaning costs per ton are much lower.

Pound for Pound Tru-Steel Shot will clean more work than any other abrasive you can use. A test will prove this for you.

Mfg. by Steel Shot Producers, Inc., Butler, Pa.

**TRU-STEEL
SHOT**

American

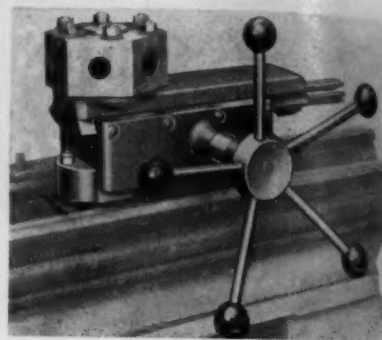
OFFICES IN PRINCIPAL CITIES

AMERICAN WHEELABRATOR & EQUIPMENT CORP. 510 S. Byrkit St., Mishawaka 3, Ind.

504

New Equipment

Continued



Self-indexing turret

A new self-indexing bed turret for use on most standard lathes swinging from 9 to 12 in. features a sturdy, simple self-indexing mechanism which is linked to automatic stop rods. These limit stroke length and can be set for any requirement up to the full slide working stroke of 5 1/4 in. Total slide travel is 6 in. The turret is guided in its rotation by a large diameter pilot integrally cast which deeply engages a mating bearing in the slide. Due to its design the entire work load is applied to the pilot and flat bearing surfaces, resulting in extreme rigidity and freedom from deflection. *Globe Heat-Seal, Inc.*

For more data insert No. 29 on postcard, p. 491.

Improved flooring

Worn, cracked, rutted and distintegrating floors of concrete, wood, asphalt and composition materials can be transformed into like-new condition, inexpensively with new, improved Roc-Wood. It is composed of hardwood fibers chemically treated and bonded together with a plastic binder. Combination of wood, chemical and plastic results in a smooth, skid-proof, practically indestructible floor surface. Roc-Wood binds itself permanently to almost any sub-structure without costly underlayments. It can be laid with a trowel, using premixed ingredients, by inexperienced help. It is ready for unlimited use within 24 hr. *Roc-Wood Flooring.*

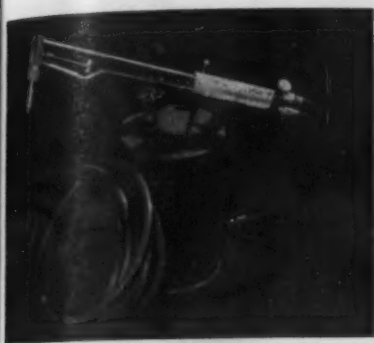
For more data insert No. 30 on postcard, p. 493.

Turn to Page 507

THE IRON AGE

New Equipment

Continued



Gasoline cutting torch

Overall saving of 25 to 30 pct to such operations as cutting, brazing, scarfing is claimed for a new cutting torch that burns gasoline and oxygen. Tests are said to show the torch makes a fast and clean cut. Cutting head design eliminates backfiring and backflashing into the torch handle. Basically, the new torch operates in the same manner as an acetylene torch. It blends liquid gasoline and oxygen, which is converted into vapor in the torch tip by the heat of the torch flame. *Browning Torch Corp.*

For more data insert No. 31 on postcard, p. 493.

Spring clamp

ServiSleeve holds loose end of a guy strand firmly to the guy. It slips easily over the loose end and is tapped into position with any convenient tool, in 4 to 5 sec. The unit is heavy galvanized steel with a belled end. *Hubbard & Co.*

For more data insert No. 32 on postcard, p. 493.

Lasting protection

A water-white synthetic lacquer provides nonferrous metal objects with lasting protection against corrosion. The clear lacquer, BO 562, provides unusual hardness and offers high resistance to tarnishing caused by alkalis, body acids, and corrosive elements in the atmosphere. It is applied in a hair-thin coating, which preserves an original plated metal effect; dries to dust free within a few moments; and may be handled within 10 min. It is available in gloss, semi-gloss and flats. *United Lacquer Mfg. Co.*

For more data insert No. 33 on postcard, p. 493.

Turn Page

EVERY TYPE OF CUT GEAR FOR EVERY INDUSTRIAL PURPOSE

SINCE 1888... We have been making many types and sizes of gears for industry. During these passing years we have derived considerable experience, trained numerous personnel, and expanded our mechanical and plant facilities—and have remained under one continuous management. We are ready to ably serve you.

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1888

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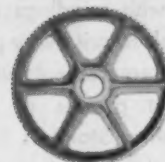
**CONTINUOUS-TOOTH
HERRINGBONE GEAR**

1" to 60" diameter, 1 1/2 DP
to 1 1/2 DP and up to 20" face.



WORM GEAR

1" to 58" diameter,
from 24 DP to 1 DP.



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From 1/4" to 150" diam-
eter, 32 DP to 1/2 DP and
up to 30" face.



HELICAL GEARS

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24 DP to 1 1/2 DP and
up to 20" face.



**BEVEL GEARS
(Straight Tooth)**

From 1" to 60" diameter,
24 DP to 1/2 DP.



SPIRAL BEVEL GEARS

From 1" to 30" diameter,
24 DP to 1 1/2 DP.

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... for Industry ... for Agriculture

Elliott specializes in Heavy Duty Flexible Shaft units for power take-off of trucks and tractors, for operating pumps, compressors, winches, and similar units.

Elliott supplies Flexible Shafts to builders of Grinders, Sanders, Polishers, Concrete Vibrators and other portable tools for working in metals, plastics, wood and ceramics.

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Elliott Engineering Service will help you select the type of Flexible Shafting and standard accessories which are best suited to your particular type of work. Inquiries are held in confidence, and this service is yours without obligation.

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SET FOR

**HEAVY
GUESTS**

BUT IT'S A-F Engineered TO TAKE IT!

STEEL SHEETS are discharged onto this A-F Engineered piler table at a fast clip. Each sheet strikes the end stop and the back-up bar and then drops onto the sturdy rolls of the A-F Roller Conveyor. The sheets accumulate into a well aligned stack, which frequently weighs 50 tons—a real test for any conveying equipment. This is just one section of the A-F Engineered Completely Co-ordinated Conveying System that has increased efficiency and lowered handling costs.

Since 1901, Alvey-Ferguson Engineers have helped thousands of plants to make worth-while economies in handling materials and products. These 51 years of know-how are available to your plant, too. Why be satisfied with less? May we discuss modern conveyerized methods with you? Write, without obligation—today.

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CONVEYING EQUIPMENT



Alvey-Ferguson

WASHING MACHINES FOR INDUSTRY

New Equipment

Continued



Milling machines

The Jaspas line of milling machines built in Liege, Belgium, is now available in the United States. They are made in a range of models, both vertical and universal, in No. 2 and No. 3 sizes. In most instances the universal type has been designed to incorporate climb-milling attachments. The machines are heavily and sturdily built so that the tables, when used for production manufacturing, can stand the maximum speeds of tungsten carbide cutters. They are equipped with main drive motors for the spindle and a separate motor for actuating the feeds of the table.

Morey Machinery Co.

For more data insert No. 34 on postcard, p. 493.

Creep recorders

Two new recorders for Baldwin lever-type creep machines and 4000-lb creep-relaxation testing machine are announced. Creep specimen deformation of 0.020 in. produces full scale pen carriage movement of 10 in. across a strip chart, that is driven by a synchronous motor. A 150-ft chart roll gives a 7200-hr record. For creep relaxation records a conventional Microformer type strip chart recorder has been developed. The receiving Microformer moves the pen across a 10-in. wide strip chart in proportion to the tensional load on the specimen. *Baldwin-Lima-Hamilton Corp.*

For more data insert No. 35 on postcard, p. 492.

New Equipment

Continued

Titanium thread gage

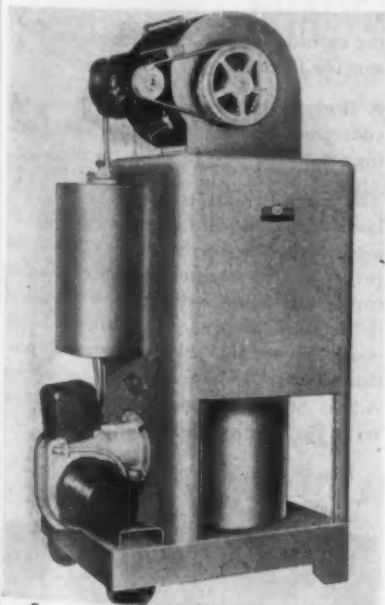
Thread ring gages made of De-mark, a combination of titanium and carbide, are light in weight and show phenomenal wear life, tested for 4 years in actual production and on assembly lines. Completely eliminated is the need for building wear allowance into the gage. Manufactured to such a high degree of accuracy, a special wear check plug is provided with each ring. The plug is a double end type with one end slightly larger to detect any possible wear. Every gage is a registered gage. *Pipe Machinery Co.*

For more data insert No. 36 on postcard, p. 493.

Heat machine

By blowing warm air out of the base along the floor, a new 140,000 Btu heat machine creates a 6-ft-high heat blanket and eliminates the necessity for heating vast overhead areas in order to keep workers comfortably warm. This concentration of heat reportedly reduces heating costs by 90 pct. Since the machine sprays heat from all sides across the floor, it can be advantageously located in the center of large areas, and can comfortably heat workers in 3000 sq ft confined spaces or 1600 sq ft of open space. *Fageol Heat Machine Co.*

For more data insert No. 37 on postcard, p. 493.



Turn Page



CHARACTERISTICS

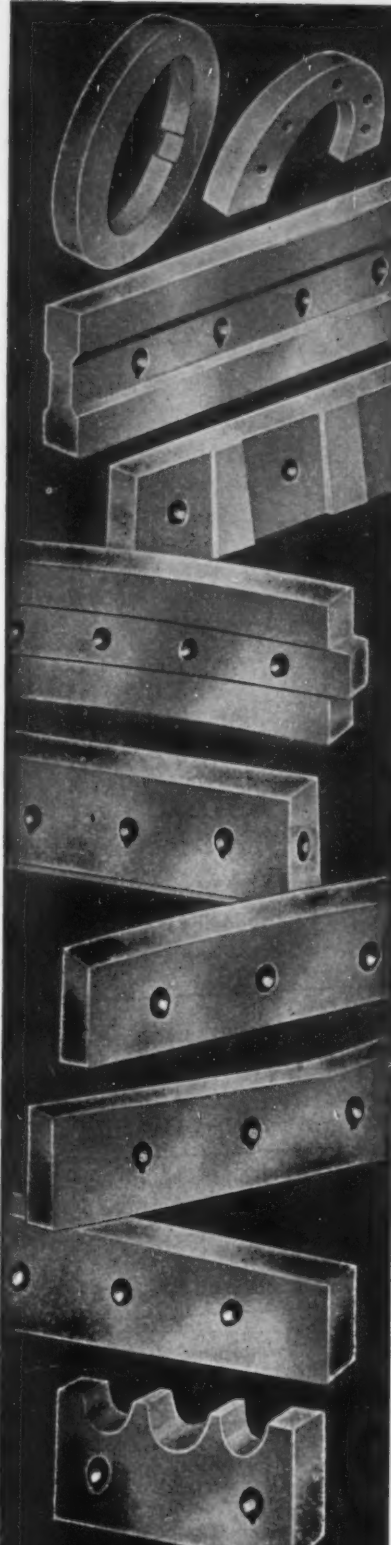
OPERATING ADVANTAGES

1	Pressure Balanced Sealing Members and Generous Ball Bearings	Non-fatiguing Handle Load at 6000 psi
2	Large, Unobstructed, Tubular Flow Passages	No Pressure Waste
3	Self-Lapping Metal to Metal Sealing Surfaces	Wears-In Where Others Wear-Out
4	No Lubrication Required	No Freeze-ups Even During Long Shut-downs
5	Square-corner Wiping Action of Sealing Members	Dirt and Pipe Scale Wiped Away
6	Pressure Loaded, Self-Aligning, Optically Flat Sealing Members Remain in Constant Contact	Leakproof Closure Vacuum to 6000 psi
7	Flow is Through, Not Across Shear-Seal	No Wire Drawing
8	Positive Positioning	No Creeping
9	Simple Design Rugged Construction	Long Life No Production Down-Time



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Greater Tonnage
Per Edge of Blade.

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**AMERICAN
SHEAR KNIFE CO.**
HOMESTEAD · PENNSYLVANIA

—New Equipment—

Continued

Surface temperature

Measuring 2 in. in diam, a surface temperature thermometer provides fast, accurate checking of the outside temperature of journals, pipes, bearings, electric motors, cylinder blocks. The instrument may be quickly and easily affixed to any flat surface by applying a small amount of silicone grease that is supplied with the instrument, and sticking the thermometer in place. A small magnetic clamp holds it securely in place when applying it on steel dies and ferrous surfaces. Temperature from the back of the instrument only is indicated. Range is 0 to 300°F. *Pacific Transducer Co.*

For more data insert No. 38 on postcard, p. 493.

Hydraulic service set

Caterpillar tractor service tools are designed for use with the new OTC Power-Twin hydraulic puller, a 17½ ton hydraulic ram. The set contains the minimum assortment of pullers, adaptors and attachments, which have been tested and found essential to service Caterpillar tractors. The Power-Twin takes the hard work out of pulling and stalling operations involving gears, bearings, sleeves, etc. *Owatonna Tool Co.*

For more data insert No. 39 on postcard, p. 493.

Portable elevator

Powered by an Ingersoll-Rand air motor hoist, operating from a compressor, a new model portable elevator is designed for greater safety, especially in hazardous locations, such as dusty and explosive vapor areas. Safety first construction is employed throughout the unit. Consumption of compressed air is economical. Features include: automatic brake that positively holds the load; an automatic upstop and downstop; and a graduated reversing valve that gives complete control of the platform in any position. Lifting capacities range to 2000 lb. *Barrett-Cravens Co.*

For more data insert No. 40 on postcard, p. 493.



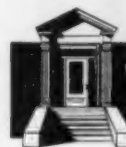
MEYCO CARBIDE INSERTED DRILL JIG BUSHINGS

There are three simple reasons why MEYCO Carbide Inserted Bushings have won an enviable reputation for themselves:

1. Cemented tungsten carbide inserts at the points of wear increase the life of the bushings an unbelievably long time.
2. Hardened steel rings above and below the carbide inserts protect both drill and carbide from the shock of impact.
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The story is simple: MEYCO bushings last as long as solid carbide bushings in most cases at costs that come close to the prices of ordinary steel bushings. And on top of that—they will increase the life of drills and fixtures, maintain accuracy much longer and solve extra tough production drilling problems. Made to A.S.A. Standards. For full information write for catalog No. 31.

Manufacturers of precision tools since 1888



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BEDFORD, INDIANA

YOU, TOO,

Can PLACE CONFIDENCE

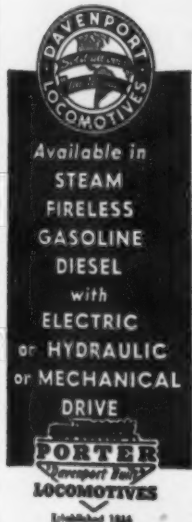
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DAVENPORT



The most recent addition to the Granite City Steel Company's fleet of Davenports is this 80-Ton, Standard Gauge, 0-4-4-0, Diesel Electric Locomotive, with Cooper-Bessmer FWL-6-T Engine and Westinghouse electrical equipment.

IN the selection of a locomotive as to size and type, it is important to meet the particular requirements of the conditions under which it is to operate—and the work to be done. If the unit is too large, valuable power is lost; if too small, precious time is lost.



Let Us ANALYZE Your Needs

We would regard it as a privilege to analyze your haulage needs and to recommend a locomotive **FITTED** to those needs. All without obligation on your part.

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WORK GLOVES
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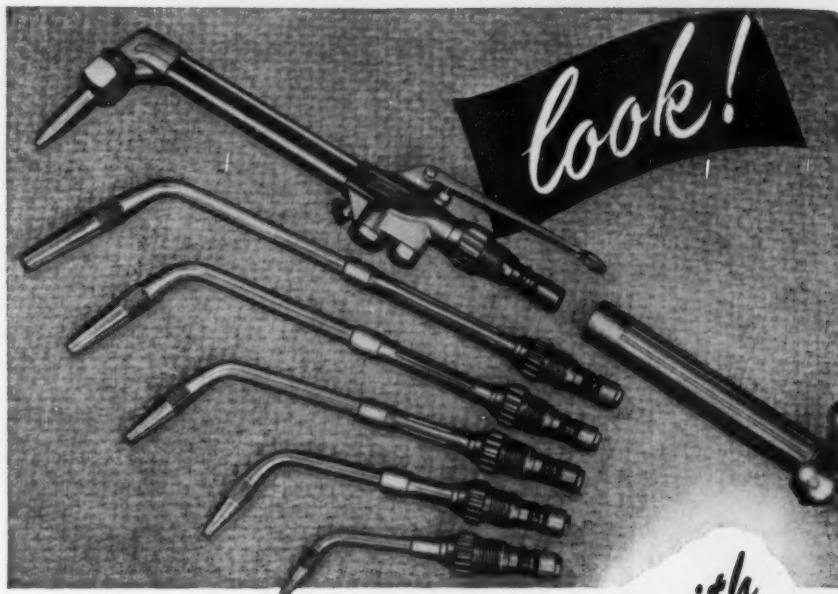


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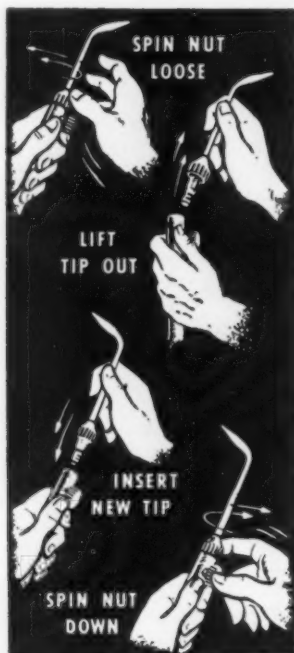
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Representatives in all industrial areas.



You can change these *Smith* Tips in **6 Seconds**



**THAT'S ALL! . . . JUST
6 SECONDS; IT'S NEW
AND REVOLUTIONARY**

- No wrench necessary
- Fingers do the job
- Fast line-up of tip
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How do you like that for fast, efficient operation? No searching for wrenches—no wasted time. Just use fingers only. In actual demonstrations, operators have been able to remove and replace 4 tips in the time another operator could remove and replace 1 tip in an old fashioned model. And the seal stays tight even if tip is battered or nicked!

This is the kind of progress modern industry needs and wants. But it's not the only advantage you get with this new Smith equipment. Note that the Cutting Assembly can be attached just as quickly as a tip and the new "FLO-TROL" feature eliminates reverse flow of gas—prevents burned out seats. Keeps torch on the job . . . does away with costly delays. Another ingenious feature permits rotating the tip **while flame is burning!** (Heavy Duty Torch Body and Cutting Assembly, illustrated above, carries Lifelong Guarantee).

MAIL COUPON TODAY FOR DETAILS



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Please send me more information on the time-saving and money-saving features of your new torch.

Name _____
Address _____
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Technical Briefs

Wet Blasting:

Jet engine parts cleaned with new method . . . Test failures show.

Wet blasting equipment is being successfully used at Pratt & Whitney Aircraft Div., United Aircraft Corp., for cleaning of experimental jet engine parts.

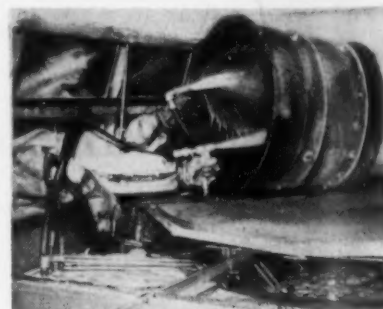
The custom-built wet-blasting unit, built by Cro-Plate Co., Inc., cleans parts after the assembled engine has been run and then disassembled for inspection.

At the high temperatures at which jet engines operate, turbine sections and exhaust ducts become covered with a hard, tough coating of lead sulphate and lead oxide which is literally "baked on."

This coating has to be completely removed in order to properly inspect the engine parts after the test-running. Pratt & Whitney Aircraft's inspection procedure calls for the parts to be immersed, after cleaning, in a Xygly bath (penetrating oil) and then to be exposed to "black" light.

Cracks that may have developed during the running of the engine show up clearly in this light. Absolute cleanliness of the parts is required since any surface contamination would defeat the inspection.

The coating clings so tenaciously it has to be eroded off. For this, wet-blasting proved to be the only practicable cleaning method. Sandblasting is unsuitable since it is too abrasive. Grits used are too coarse, and cannot be given the "cushioning" effect which is possible with wet-blasting.



WET BLASTING of disassembled jet parts proves practical cleaning method at Pratt & Whitney Aircraft.

Turn to page 522C

Technical Briefs

Continued

Hand-cleaning is not only too slow and expensive and risks damaging the precision-finished surfaces, but also could not do a sufficiently thorough job on these large engine sub-assemblies as well as the many smaller parts.

Larger assemblies, such as turbine wheels and nozzle vane sections, are so complex and intricate, with many inaccessible locations and with sharply-curved surfaces, that they could only be cleaned on a practical basis with wet-blasting equipment.

The unit is housed in an 8-ft cube, with a 5 ft by 7-ft opening at the right side of the cabinet. Through this opening can be rolled out a 6½-ft turntable (supported by an angle-iron framework) for easy loading of the larger-sized components; the turntable is then rolled back inside the cabinet for the cleaning operation. Three operators can work at the unit at one time, with each operating one or two wet-blasting "guns."

Resources:

Depletion poses major problem for mining and agriculture . . .

Depletion of the earth's resources by a growing population will be a major factor in future progress of mining and mineral engineering, according to Dr. J. R. Dunning, of the Columbia University Engineering center.

The solution, in large part, must rest with scientists and engineers skilled in mining, metallurgical, and mineral engineering, Dr. Dunning stated.

The critical shortage of scientists and engineers is a responsibility of American schools of engineering. Scientific engineering education must be more progressive and dynamic than ever if the world's needs are to be met.

Future research in mining, metallurgical, and mineral engineering at the Engineering Center will be directed toward solution of these problems.

The ABC of MST

A ALWAYS MAKES POSSIBLE
B BETTER PRODUCTS
C AT LOWER COST

Michigan

Electric Resistance

WELDED
STEEL TUBING

A
Quality
Product

ROUND

¾" to 4" O. D. 9 to 22 gauge

SQUARE-RECTANGULAR

½" to 2" 20 gauge, 1" to 2¾",
14, 16, 18 gauge

Carbon 1010 to 1025

Michigan Tubing

has uniform strength, weight, ductility, I. D. and O. D., wall thickness, machinability, and weldability. It can be flanged, expanded, tapered, swaged, beaded, upset, flattened, forged, spun closed, fluted, and rolled. Available in a wide range of sizes, shapes and wall thicknesses, prefabricated by Michigan or formed and machined in your own plant.



Consult us for engineering and technical help in the selection of tubing best suited to your needs.

Design for Defense

Design and other advantages inherent in the use of electric resistance welded steel tubing resulted in its adaptation to hundreds of widely different weapons and materials for the armed forces during World War II.

These same advantages of design and adaptability make the contribution of Michigan tubing to the present defense effort a most important one, for reasons of fast, economical production. Problems of application to such items as automobiles, trucks, guns, bombs, etc., can be readily solved by consultation with Michigan engineers.

Michigan's facilities are at the disposal of manufacturers who are engaged in defense work, as well as those who wish to produce better consumer products at lower cost by the use of Michigan tubing.

Michigan

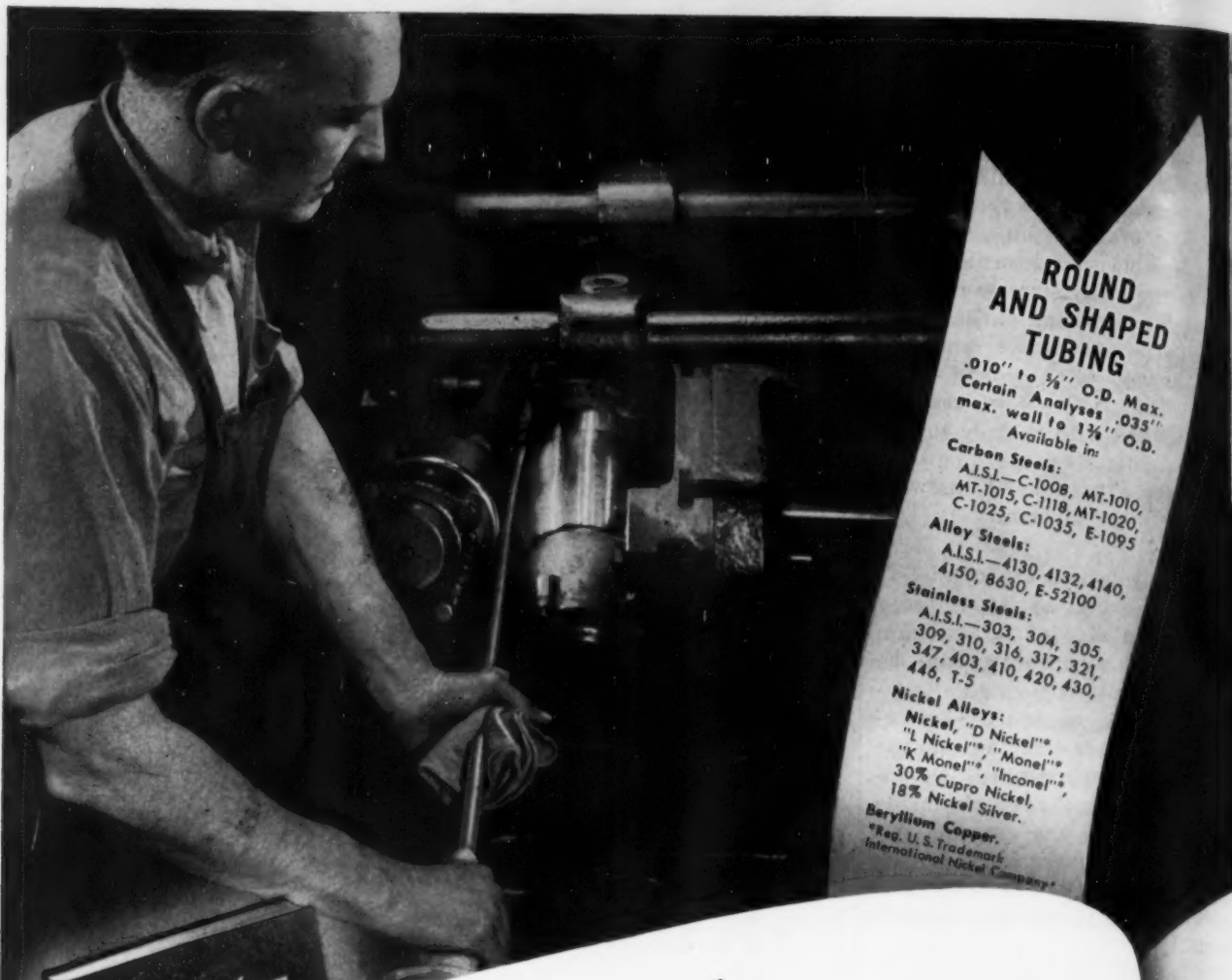
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.010" to 3/8" O.D. Max.
Certain Analyses .035"
max. wall to 1 3/8" O.D.
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Alloy Steels:

A.I.S.I.—4130, 4132, 4140,
4150, 8630, E-52100

Stainless Steels:

A.I.S.I.—303, 304, 305,
309, 310, 316, 317, 321,
347, 403, 410, 420, 430,
446, T-5

Nickel Alloys:

Nickel, "D Nickel",
"L Nickel", "Monel",
"K Monel", "Inconel",
30% Cupro Nickel,
18% Nickel Silver.

Beryllium Copper:

*Reg. U.S. Trademark
International Nickel Company



Chapter 4

Putting the Squeeze on Tubing —to End Bends!

Whether you use fine small tubing as a medium for transporting fluids or gases—or fabricate it into component parts—you want it straight as an arrow to start. That's where the machine pictured above comes in.

Commercial straightness is easily attained with Superior's numerous types of specialized straightening equipment.

In the normal course of tube drawing operations, unequal stresses are set up and the resultant tube has bends and bows which must be removed.

All these stresses are equalized in one operation. The tube is straightened and the end result is a better product for you.

To produce the world's best tubing we inspect and check many times, mechanically and metallurgically. We use microscopes to check grain structure, and keen-eyed inspectors to detect surface scratches, splits and pits. Pressure tests find any possible flaws in the walls. A continuing program keeps every Superior production worker aware of his part in the quality picture.

What does this mean to you?

It means you get fine small tubing that will do the toughest jobs better. Right now (because of Defense Orders and metal shortages) we may not be able to fill all of your tubing requirements, but it will pay you to check with your Superior distributor—he may have enough tubing in stock to help you. Always specify Superior Tubing and you'll always be right.

Superior Tube Company, 2004 Germantown Ave., Norristown, Pa.
West Coast: Pacific Tube Company, 5710 Smithway St., Los Angeles 22, Calif. UNDERHILL 6-1331.

Superior

THE BIG NAME IN SMALL TUBING

All analyses .010" to 3/8" O.D.
Certain analyses (.035" max. wall)
Up to 1 3/8" O.D.

U. S. Production Holds 3 to 1 Ratio Over Russia

U. S. output of steel in '51 was 105.2 million tons; Russia, 34 million; world 224.7 million . . . U. S. capacity gained 2.5 million tons in 1951 . . . Expect 10.5 million tons more in 1952.

Steel production in the United States during 1951 was nearly equal to the combined output of all the other countries of the world. American steel companies produced 105.2 million net tons of steel ingots and castings last year, compared with total world output of 224.7 net tons.

Steel production in the U. S. was more than three times the total output of the Soviet Union. U. S. Output, 105.2 million net tons; Russia, 34 million. When satellite countries and U. S. allies are included, the weight of steel production is even more heavily in favor of the free world.

New Records—Last year's production in this country was 8.4 million tons higher than the previous year. Russian output gained 4.5 million tons over 1950. Production in both countries bettered all previous records.

The United Kingdom ranked third in steel production last year with 17.6 million net tons, although this was half a million tons less than it made in 1950. Fourth largest producer was Western Germany, with 14.2 million tons, a gain of almost a million tons. France ranked fifth with 10.7 million tons, more than a million tons higher than the previous year.

More Steel Coming—Total world steel output of 224.7 million net tons in 1951 was more than 20 million tons above the previous record high of 1950. Marshall Plan assistance is credited with helping boost production sharply in Western European countries. In addition

to dollar aid, much of the equipment and technical help needed for reconstruction, modernization and expansion of steel-making in these countries came from the U. S.

During 1952 American steel companies should be able to turn out 112.5 million tons, if needed. By 1953 as much as 117 to 118 million tons could be produced. But labor trouble or scrap shortages could upset these potentials.

Expansion Timetable—Steel expansion in this country last year spurred 2.5 million tons toward the government goal of 123 million tons of annual capacity by 1954. The increase brings total capacity at the beginning of this year to about 107 million tons per year. In the first half of 1952 the industry expects to add another 6.5 million tons. The expansion timetable is slated to bring in another 4 million tons of new capacity in the last half of the year, and 2 million tons more in 1953. Sometime in 1953 the industry expects its total annual capacity to reach 120 million tons.

Decontrol—During 1952 steel producers will stand on their production and expansion records in agitating for relaxing of complete government control over steel distribution through the Controlled Materials Plan. Their arguments will stress inequities in CMP. And they will question the need for 100 pct control when direct military needs amount to less than 15 pct of production. In addition, they will point out that increased production alone is sufficient to

fill all military requirements—that more steel than ever before is available for other users.

Distribution—A question often asked by disappointed steel seekers is "Where is all the steel going?" The answer is that it is (1) being used and (2) being stored in inventory.

An IRON AGE analysis of steel distribution by consuming industries showed that nearly all industries received more steel in 1951 than in 1950. In this study all steel consumers were divided into 12 industry groups. Only two of these groups received less steel in 1951 than the previous year. They were autos, and oil, gas, water and mining.

Inventory—The Korean crisis found most steel users with their inventories down. Since then they have been battling to raise them, and there is no doubt that many of them have been fairly successful. IRON AGE editors have actually found a few cases where inventories had risen past permitted limits and manufacturers were having difficulty liquidating them at cost—which included some premium price steel. Such cases are still the exception, rather than the rule, but they do show what eventually happens when manufacturers operate under the psychology of scarcity.

Another point which many fail to realize is that inventory must be built from scratch for each new item of military production. The assembly lines won't budge until pipelines are at least partly full.

Ingot Rate High—Steelmaking operations this week are tentatively scheduled at 101.5 pct of rated capacity, up half a point from the previous week.

*America
needs
more
Steel—*

SCRAP

Will Make More Steel!

America's steel-producing industry is straining every muscle to make all the steel needed for both defense and essential civilian uses. The industry has the men, the furnaces and the mills for the job—but

IT MUST HAVE MORE SCRAP!

The half-ton of scrap needed for every ton of finished steel *must* be kept moving to the mills—or steel production will drop. Scrap is in short supply. Unless every available bit of iron and steel scrap is combed out and sent to the mills you'll soon read of curtailed production. And this must not happen!

Go through your plants, warehouses and yards. Seek out every worn-out or obsolete machine, every bit of iron or steel that is not working. Get it in to your scrap dealer **NOW**. The need is urgent.

WEIRTON STEEL COMPANY

WEIRTON, WEST VIRGINIA

NATIONAL STEEL CORPORATION



*Sell scrap iron
and steel Now!
Clean up your
Plant and help
America.*

Call your local scrap dealer today.

Market Briefs

conversion—So far the government has had little success in urging consumers to utilize conversion steel. When it was suggested that some agencies who had requested more steel should tap the conversion market they were aghast. Big consumers who used to rely on conversion are usually able to get their CMP tickets cashed. Seems that everybody still wants steel but few are willing to pay premiums.

materials handling—Conveyer manufacturing has become a \$200-million-a-year industry, according to a year-end analysis by the Conveyor Equipment Manufacturers Assn. Pressure for cost-cutting during the period of rising prices has given the materials handling business its main impetus. Studies made by the association show that in a typical industrial plant \$1 goes for materials handling. A cross-section of cases indicates that this cost often can be cut in half by mechanization and systematic planning.

omit flowers—Machines and parts supplanted cut flowers as the major item of air freight carried by United Air Lines in 1951. The top ten air freight commodities, by weight, were machines and parts, cut flowers, electrical equipment, automotive parts and equipment, radios and parts, aircraft parts and accessories, wearing apparel, printed matter, hardware and advertising display material.

steel prices—apparently a good many steel users have already written off a steel price increase which they expect to result from the steel wage settlement. Purchasing agents are noted for their practical outlook; evidently they take statements of Messrs. Putnam and DiSalle with a grain of salt.

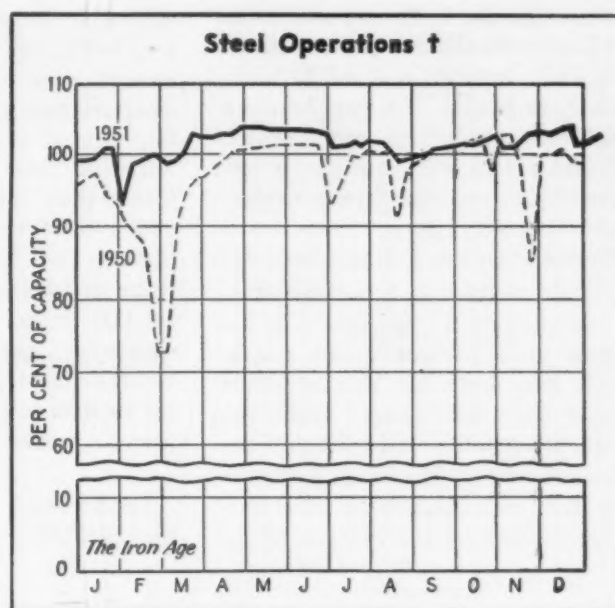
sales down—Factory sales of household vacuum cleaners in November totaled 219,119 units, a decrease of 15.6 pct from 259,469 in the preceding month, according to the Vacuum Cleaner Manufacturers' Assn. November sales were 17.4 pct below 265,310 cleaners sold in November, 1950.

one down—Tennessee Coal, Iron & R.R. Co. took out one blast furnace this week for overhauling. Repairs will take 50 to 60 days.

scrap—Shipments of scrap by the nation's railroads are expected to average more than 400,000 tons a month over the next several months, according to Assn. of American Railroads. October shipments by rail systems totaled more than 325,000 tons of normal scrap and 100,000 of dormant scrap, it was reported. A "liberalized" policy of scrapping obsolete and worn-out locomotives will be continued.

record tonnages—With rail shipments added, the tonnages of iron ore and limestone moved to Chicago district mills of U. S. Steel Co. were the greatest on record during the 1951 Great Lakes shipping season. Totals of ore and limestone combined, carried by boat and rail, amounted to 20,312,418 net tons for both Gary and South works of U. S. Steel.

sales off—Gas appliance sales were down in 1951 from 1950 peaks, but generally above the 1946-49 average. Sales of hot water heaters totaled 2 million, down 363,000 from the year before. Domestic gas ranges dropped from 3,023,000 to 2,400,000, and home heating units fell 40 pct to 610,000.



District Operating Rates—Per Cent of Capacity †

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	West	Buffalo	Cleveland	Detroit	Wheeling	South	Ohio River	St. Loui	East	Aggregate
Dec. 23	100.0	105.0	103.0	98.5	100.0	104.0	89.5	106.0*	104.0	104.0	77.5	50.0*	103.0	101.0
Dec. 30	101.0	102.0	103.0	100.0	102.0	104.0	96.0	109.0	104.0	106.0	96.0	50.0	103.0	101.5**

† Beginning Jan. 1, 1951, operations are based on annual capacity of 104,229,650 net tons.

* Revised.

** Tentative.

Nonferrous Markets

New Year to Break Output Records

Production of major metals will be high but world prices will cut imports . . . Military demand will be satisfied but there won't be enough for all civilian uses—By R. L. Hatschek.

What the New Year will bring is contingent upon many *ifs*. Any predictions, in these times of world uncertainty, must necessarily be flexible. But here's what the outlook is:

Aluminum—This metal will pass the million-ton level for the first time in history (see p. 210). It will gain stronger footholds in its own right and as a substitute. Military demand will be heavier than ever before. The monopoly charge will still be heard and the government will attempt to get more producers in business.

Copper—Production of crude copper in the U. S. may reach the million tons that were just missed in 1951. Imports will not be sufficient to bridge the gap between domestic production and demand. World prices will continue to exceed U. S. ceilings by a considerable margin. Scrap copper will remain scarce and efforts to find it will be strenuous and desperate.

Conservation programs will become more prevalent and copper will lose some markets to other materials. More copper producers and brass mills will probably extend their services to include production and fabrication of aluminum, following the pattern set in

MONTHLY AVERAGE PRICES

The average prices of the major non-ferrous metals in December based on quotations appearing in THE IRON AGE, were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley..	24.50
Lake Copper, delivered	24.625
Straits tin, New York	\$1.03
Zinc, East St. Louis	19.50
Zinc, New York	20.29
Lead, St. Louis	18.80
Lead, New York	19.00

1951 by Anaconda Copper, Bridgeport Brass and Revere Copper.

Zinc—The all-time production record of 990,000 tons, set in 1943, may fall in the coming year. Given enough raw material, American smelters can produce over a million tons of slab zinc in 1952. Imports in 1951 were only a little more than half the preceding year's total and the world price picture can be expected to continue its adverse effect on imports. In this metal also, civilian demands will not be completely met but the situation is not as desperate as with some of the other non-ferrous metals.

Lead—Lead will follow a pattern similar to zinc. Production in

1951 was about 390,000 tons and can be expected to be higher in the New Year. Scrap, now the major source of lead, yielded 500,000 tons of the metal in 1951 but National Production Authority will probably slap on inventory controls for scrap. Imports, less than half the 1950 total, will not increase substantially. Despite this, supply and demand will not be too far separated.

Tin—Despite a world supply in excess of demand, U. S. tin consumers have been hit by shortages because of the government's efforts to bring world prices down to about \$1 per lb. The situation is at its climax and early in the New Year Reconstruction Finance Corp. will either make a deal with Bolivia or Indonesia or the strategic stockpile will have to be dipped into. Bolivia wants \$1.50, Indonesians reportedly ask \$1.25 and RFC still holds out for \$1.12. The solution, if the stockpile is not used, will be a compromise.

Magnesium and Titanium—These two new metals, one in its youth, the other in its infancy, are taking vast strides in technology and research. Demand for both is soaring; supply is skyrocketing. But in adequacy of supply they differ for magnesium will be in plentiful supply next year, barring full-scale war, while titanium won't even be sufficient for military desires.

Magnesium output in 1951 totaled about 40,000 tons and 1952 should see 97,500 tons produced. The shortage of sheet rolling capacity will be eliminated with the completion of two new four-high mills now under construction. The first significant production of titanium was in 1950 when 60 tons was made. Output jumped to 500 tons in 1951 and predictions for 1952 call for production of about 4000 tons.

NONFERROUS METAL PRICES

	Dec. 26	Dec. 27	Dec. 28	Dec. 29	Dec. 31	Jan. 1
Copper, electro, Conn.	24.50	24.50	24.50	24.50	24.50	....
Copper, Lake delivered	24.625	24.625	24.625	24.625	24.625	....
Tin, Straits, New York	\$1.03	\$1.03	\$1.03	....	\$1.03	....
Zinc, East St. Louis	19.50	19.50	19.50	19.50	19.50	....
Lead, St. Louis	18.80	18.80	18.80	18.80	18.80	....

*Tentative

Note: Quotations are going prices.

Nonferrous Prices

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32.5¢; 62S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 76S-O, 76S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 62S, 35.5¢; 24S-O, 24S-OAL, 34.1¢; 76S-O, 76S-OAL, 41.8¢; 0.082 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 62S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 76S-O, 76S-OAL, 52.2¢.

Plate 1/4 in. and heavier: 2S, 3S-F, 28.3¢; 4S-F, 30.2¢; 62S-F, 31.8¢; 61S-O, 38.8¢; 24S-O, 43-OAL, 32.4¢; 76S-O, 76S-OAL, 38.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 12.5¢ to 74.5¢; 12 to 14, 35.9¢ to 89¢; 24 to 36, 39.6¢ to 11.1¢; 36 to 38, 47.2¢ to 11.70.

Red. Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 38.5¢; cold finished, 0.375 to 2 in., 2S-F, 40-F, 40.5¢ to 38¢.

Screw Machine Stock: Rounds, 11S-T3, 1/4 in. to 1 1/2 in., 59.5¢ to 42¢; 1/2 to 1 1/4 in., 41.5¢ to 39¢; 1 1/2 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.061 to 0.374 in., 2S, 39.4¢ to 29¢; 62S, 48¢ to 35¢; 66S, 51¢ to 37¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 76S-T6, 84¢ to 67.5¢.

Extruded Tubing: Rounds: 63-S-T-5, OD in. 1 1/4 to 2, 37¢ to 54¢; 2 to 4, 35.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 45.5¢.

Roasting Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., \$1.42; 96 in., \$1.522; 120 in., \$1.902; 144 in., \$2.284. Gage 0.24 x 28 in., 72 in., \$1.379; 96 in., \$1.389; 120 in., \$2.299; 144 in., \$2.759. Coiled Sheet: 0.019 in. x 28 in., 38.4¢ per lb; 0.024 in. x 28 in., 26.9¢ lb.

Magnesium

(F.O.B. mill, freight allowed)

Sheet and Plate: FS1-O, 1/4 in., 65¢; 1/2 in., 66¢; 3/4 in., 67¢; B & S Gage 10, 65¢; 12, 72¢; 14, 78¢; 16, 85¢; 18, 93¢; 20, \$1.05; 22, \$1.27; 24, \$1.67. Specification grade higher. Base: 10,000 lb.

Extruded Round Rod: M. diam in., 1/4 to 3.11 in., 74¢; 1/2 to 3/4 in., 57.5¢; 1 1/4 to 1.749 in., 53¢; 2 1/4 to 5 in., 48.5¢. Other alloys higher. Base up to 1/4 in. diam, 10,000 lb; 1/2 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. in weight per ft. for perimeters less than size indicated, 0.10 to 0.11 lb, 3.5 in., 62.3¢; 0.22 to 0.25 lb, 5.9 in., 59.3¢; 0.50 to 0.59 lb, 8.6 in., 56.7¢; 1.8 to 2.59 lb, 19.5 in., 53.8¢; 4 to 6 lb, 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/4 in., 10,000 lb, 1/2 to 1.80 lb, 20,000 lb; 1.80 and heavier, 30,000 lb.

Extruded Round Tubing: M. wall thickness, outside diam. in., 0.049 to 0.057; 1/4 in. to 5/16, \$1.40; 5/16 to 3/4, \$1.26; 3/4 to 1, \$1.10; 1 to 2 in., 76¢; 0.165 to 0.219, 80¢; 2 to 3 in., 87¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in. in.: Up to 1 1/4 in., 10,000 lb; 1 1/4 in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$10; Bar, HR or forged, \$6; Forgings, \$6.

Nickel and Monel

(Base prices, f.o.b. mill)

"A" Nickel Monel

	77	60%
Sheets, cold-rolled	77	60%
Strip, cold-rolled	83	63%
Rods and bars	73	58%
Angles, hot-rolled	73	58%
Plates	75	59%
Seamless tubes	106	93%
Shot and blocks		53%

Copper, Brass, Bronze

(Freight prepaid on 200 lb)

	Sheet	Rods	Extruded Shapes
Copper	41.68		41.28
Copper, h-r		37.53	
Copper, drawn		38.78	
Low brass	39.67	39.36	
Yellow brass	38.28	37.97	
Red brass	40.14	39.83	
Naval brass	43.20	37.26	35.52
Leaded copper		41.58	
Com'l bronze	41.13	40.82	
Mang. bronze	46.92	40.81	42.37
Phos. bronze	61.07	61.32	
Muntz metal	41.18	36.74	37.99
Ni silver, 10 pct	49.32	52.04	

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed 19.00
Aluminum pig 18.00
Antimony, American, Laredo, Tex. 50.00
Beryllium copper, 3.75-4.25% Be. 1.5¢
Beryllium aluminum 5% Be, Dollars per lb contained Be. \$69.00
Bismuth, ton lots 22.25
Cadmium, del'd 22.65
Cobalt, 97-99% (per lb) \$2.40 to \$2.47
Copper, electro, Conn. Valley 34.50
Copper, Lake, delivered 24.625
Gold, U. S. Treas., dollars per oz. \$35.00
Indium, 99.8%, dollars per troy oz. \$2.25
Iridium, dollars per troy oz. \$200
Lead, St. Louis 18.80
Lead, New York 19.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb. 24.50
Magnesium, sticks, 100 to 500 lb 42.00 to 44.00
Mercury, dollars per 76-lb flask, f.o.b. New York \$212-\$215
Nickel electro, f.o.b. N. Y. warehouse 59.58
Nickel oxide sinter, at Copper Creek, Ont., contained nickel 52.75
Palladium, dollars per troy oz. \$24.00
Platinum, dollars per troy oz. \$90 to \$93
Silver, New York, cents per oz. 58.00
Tin, New York 11.03
Titanium, sponge 35.00
Zinc, East St. Louis 19.50
Zinc, New York 20.20
Zirconium copper, 50 pct 36.20

REMELTED METALS

Brass Ingot

(Cents per lb, delivered carloads)

85-5-5-5 ingot
No. 115 27.25
No. 120 26.75
No. 123 26.25
80-10-10 ingot
No. 305 32.25
No. 315 30.25
88-10-2 ingot
No. 210 40.00
No. 215 38.50
No. 245 33.50
Yellow ingot
No. 405 23.25
Manganese bronze
No. 421 30.50

Aluminum Ingot

(Cents per lb, 10,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper, max. 20.6
0.60 copper, max. 20.4
Piston alloys (No. 122 type) 21.2
No. 12 alum. (No. 2 grade) 19.5
108 alloy 20.6
195 alloy 20.8
13 alloy 20.8
ASX-679 20.5

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97% 18.00
Grade 2—92-95% 17.75
Grade 3—90-92% 17.25
Grade 4—85-90% 16.50

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 500 lb lots)

Copper
Cast, oval, 15 in. or longer 37.84
Electrodeposited 33%
Flat rolled 38.34
Forged ball anodes 43
Brass, 80-20
Cast, oval, 15 in. or longer 34%
Zinc, oval 26%
Ball anodes 25%
Nickel 99 pct plus
Cast 76.00
Rolled, depolarized 77.00
Cadmium 22.80
Silver 999 fine, rolled, 100 oz lots, per troy oz. f.o.b. Bridgeport, Conn. 97%
Zinc cyanide, 100 lb drum 47.7

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum 63
Copper sulfate, 99.5 crystals, bbl. 12.35
Nickel salts, single or double, 4-100 lb bags, frt. allowed 20%
Nickel chloride, 375 lb drum 37%
Silver cyanide, 100 oz lots, per oz. 67%
Sodium cyanide, 95 pct domestic 200 lb drums 19.35
Zinc cyanide, 100 lb drum 47.7

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1/4¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	21%	20%
Yellow brass	19%	17%
Red brass	20%	19%
Comm. bronze	20%	19%
Mang. bronze	18%	17%
Brass rod ends	18%	

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	19.25
No. 2 copper wire	17.75
Light copper	16.50
Refinery brass	17.25*
Radiators	14.75

* Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	19.25
No. 2 copper wire	17.75
Light copper	16.50
No. 1 composition	18.50
No. 1 comp. turnings	18.25
Rolled brass	15.50
Brass pipe	16.50
Radiators	14.75

Aluminum

Mixed old cast	9.75
Mixed new clips	11.00
Mixed turnings, dry	9.50
Pots and pans	9.25

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass
No. 1 heavy copper and wire 18%—19%
No. 2 heavy copper and wire 17%—17%
Light copper 16%—16%
New type shell cuttings 16%—16%
Auto radiators (unswaged) 14%—14%
No. 1 composition 18%—18%
No. 1 composition turnings 17%—18%
Unlined red car boxes 16%—17%
Cocks and faucets 15%—16%
Mixed heavy yellow brass 12%—12%
Old rolled brass 15%—15%
Brass pipe 16%—16%
New soft brass clippings 16%—16%
Brass rod ends 15%—16%
No. 1 brass rod turnings 15%—15%
Aluminum
Alum. pistons and struts 6%—7%
Aluminum crankcases 7%—8%
2S aluminum clippings 10%
Old sheet and utensils 7%—8%
Borings and turnings 5%—8%
Misc. cast aluminum 7%—8%
Dural clips (24S) 10—11

Zinc

New zinc clippings	13%—13%
Old zinc	10%—10%
Zinc routings	6%—7
Old die cast scrap	6%—7

Nickel and Monel

Pure nickel clippings	35—36
Clean nickel turnings	35—36
Nickel anodes	35—36
Nickel rod ends	35—36
New Monel clippings	28—29
Clean Monel turnings	20—21
Old sheet Monel	28—29
Nickel silver clippings, mixed	13—14
Nickel silver turnings, mixed	12—13

Lead

Soft scrap, lead	15%—16
Battery plates (dry)	10%—11
Batteries, acid free	7—7%

Magnesium

Segregated solids	18—16
Castings	14—15

Miscellaneous

Block tin	85—90
No. 1 pewter	60—65
No. 1 auto babbitt	48—50
Mixed common babbitt	16%—16%
Solder joints	21—22
Siphon tops	48—50
Small foundry type	21—22
Monotype	18%—19
Lino. and stereotype	17%—18
Electrotype	16—16%
Hand picked type shells	10—11
Lino. and stereo. dross	8%—9
Electro. dross	7%—8

Iron and Steel Scrap Markets

Trade Ships Record Tonnage of Scrap

Bigger steel capacity running at peak is testimonial to scrap trade's initiative, and hard work in 1951 . . . More capacity being piled on will make scrap man's job more difficult.

Although the scrap industry has no time to peer back over its shoulder at history, even if it was last year's, the job it did was considerable and was one of the most crucial factors in sending America's productive machine on the road to intensified defense mobilization. It is expected that the scrap industry will have shipped from 33.5 to 34 million tons gross of metalics in 1951.

Maintenance of a steel industry operating rate at 100 pct of capacity without a falter is a testimonial to the scrap trade's unprecedented shipping record.

In 1950, the scrap trade shipped 29.5 million tons and this was thought of as an unbeatable record. For 1951, National Production Authority set a goal of 36 million tons. This had a margin for safety. Heavier use of pig iron in the openhearth melt was sometimes necessary but the steel industry pulled through.

Worth remembering is that there have been no serious losses of openhearth because of scrap.

The trade last year was pulled into price ceilings. Heavy shipping before the Office of Price Stabilization order was issued caused the first scrap crisis. After winter's steelmaking spree, the steel industry found itself with short stockpiles. But the drive to produce more and more steel and with new capacity trickling in excluded the possibility of an inventory buildup.

The traditional buildup time during warm months skipped by and stockpiles remained feeble. Scrap men pushed collections deep into cold weather. Result was an adequate supply of scrap for current operating needs. National Production Authority's allocations network was put into effect in 1951 to distribute as equitably as pos-

sible the nation's not adequate supplies.

Now holidays and winter snow and cold are hampering scrap collection and preparation. The trade is awaiting an increase in prompt industrial scrap and really tangible results from the nationwide industrial scrap drive. Steel is closer than ever to sporadic shutdowns of openhearths. But scrap men have a lot of confidence. They say that any production losses will be minor.

No matter how near scrap men came to the exhaustion point in 1951, the job that faces them this year will be monumental.

To add to the scrap man's problems, new capacity will hit far more heavily this year.

By the end of 1953 or early 1954 the scrap trade must provide enough metalics for a steel industry that has 120 million tons of ingot capacity. The trade wonders where all this material will come from. But somehow it has always been found.

Pittsburgh—Very little scrap is moving in this area. A combination of poor weather and normally dull year-end conditions are responsible. However, no serious curtailments of production have been reported. It is expected that conditions will pick up somewhat after the first of the year.

Chicago—Scrap shipments took another turn for the worse last week as heavy snows once more slowed down activity. One major producer was in considerable difficulty as scrap inventory fell below a week's supply. Some dealers estimate December shipments fell off at least 25 pct. Some here are concerned over an increasing reduction of prompt industrial scrap.

Philadelphia—The market here was extremely quiet during the holiday week. Shipments to mills were way down because of weather and Christ-

mas although some mills were open to truck shipments on New Year's Day. Inventories are much lower, with mills in a more precarious position.

New York—Shipments were going out of this area but they were skimpier loads and not as frequent. Sporadic bad weather attacks had a big nuisance value to yards but holiday vacations were the main factor making for a slump.

Detroit—Heavy snowfall in this area and dwindling scrap generation at auto plants is expected to create a difficult local scrap problem during January. With electric plants in this area down to 10 days supply or less and shipments being held up all over the state, predictions are already being made that Detroit will be unable to maintain its high operating rate over the next 30 days.

Cleveland—Holiday shutdowns and bad weather has reduced mill inventories considerably. Shipments and processing are virtually stopped, but some brokers feel there will be an increase after Jan. 1. Dealers estimate scrap production slumped about 50 pct. Auto wreckers show little activity in the cold weather. Canton's scrap drive netted better than 60,000 tons of dormant scrap.

St. Louis—Cold weather and the Christmas holidays have brought scrap collections and dealers' yard activities to a virtual standstill here.

Birmingham—Market here is unchanged. The little heavy melting coming into the district is allocated and mills want more. Dealers report cast is fairly plentiful.

Cincinnati—Mills here definitely felt holiday slow-down. Tightening of low grade cast is reported. Huge demand for good cast by steel foundries is becoming more difficult to satisfy. Icy roads and cold have slowed collections and preparation work in yards.

Boston—The increasing shortage of good scrap together with the arrival of the holiday period combined to slow down activity.

Buffalo—Some feeling that a steel strike is still possible has led to an easing of tension in the scrap market. However new scrap supplies continue light despite intensive drives.

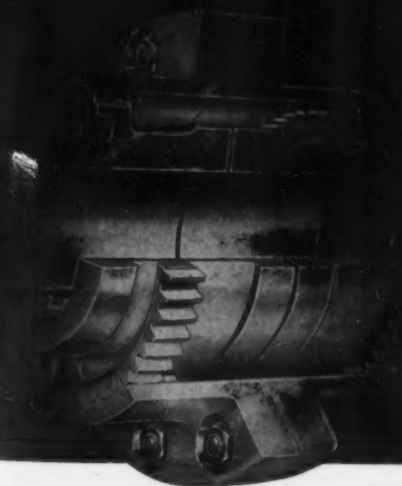
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NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Impetus of the Korean War and the blueprinting of an ambitious defense mobilization program unloosed many new inquiries into the used machinery market in the early months of 1951. Manufacturers continued a boom tempo of civilian production and others for a time showed a desire to acquire tools for possible future defense production.

To fill inquiries, the trade energetically went on junkets across the country but demand continued to harp on late model machine tools. The number of these was limited.

Price Spiral—Inflation soon became a pestilence to the used market, making tool replacement risky and shoving dealers out of the auction market. Bids on used tools began to rival prices for the new and plant men appeared on the scene in person to bypass regular dealer channels.

Talk of a sensible price control order began early in the year but Office of Price Stabilization showed little enthusiasm for controlling the used market. OPS officials continued to insist that the used market was bound by the General Ceiling Price Regulation but compliance to this general regulation was farcical and impossible.

Untried Method—When OPS did begin to consider ceiling prices for used machine tools seriously, it injected into the proposed order an untried method of pricing by weight. There were violent objections from the trade and OPS thinking was altered. Nevertheless the order was considerably delayed.

Meanwhile the used market had slipped into a summer slump and all markets reported a dropoff in business volume. Demand for late model machine tools continued unabating but quantity of this prime merchandise was scanty. Thus the market started to mark time until the pressure of need would force sales of older tools.

Reserve Tools—The Air Force went through 1951 releasing reserve machine tools from two large

depots. In many cases these tools required considerable rebuilding work. This work made rebuilding capacity short. MDNA and the Air Force tried to encourage new rebuilding capacity but the field did not expand easily. Shortages in parts, supplies, manpower threatened it and there was no assurance of a long-term spirited market.

The flow of subcontracts to smaller business was anticipated but a massive defense program took time to get rolling. Small business had few defense contracts. The spread started to pick up in the last months of 1951 but a much greater volume was needed to spark new trade in older lines of machinery. The trade found itself waiting for this enlarged subcontract flow.

Issue CPR 80—After OPS had smoothed over its difficulties in applying ceiling prices to new machine tools it issued CPR 80 to cover the used tool field. Ceiling prices were established on a percentage of the new price, depending on age and condition of the tool.

CPR 80 was looked on as being issued prematurely. Although it linked prices of the used to the new there was no supplementary price book of new prices. Dealers had to make their own inquiries and sometimes had poor results in getting price information. In other cases makers of new tools demanded payment for the extra clerical work they had to undertake.

Complaint—One segment of the industry complained bitterly that since it had little or no facilities to rebuild or recondition machine tools several clauses in CPR 80 were highly discriminating. An independent committee composed of 66 companies from the North Atlantic states brought its case to OPS—and OPS showed it was listening.

For the first time in the history of the used industry, a government agency had set a "rebuilding code." If smaller dealers were unable to meet its terms they could sell only in the "as is" market.